

AD-A141 542

GRANGER LAKE EMBANKMENT-OUTLET WORKS-SPILLWAY VOLUME 2

1/3

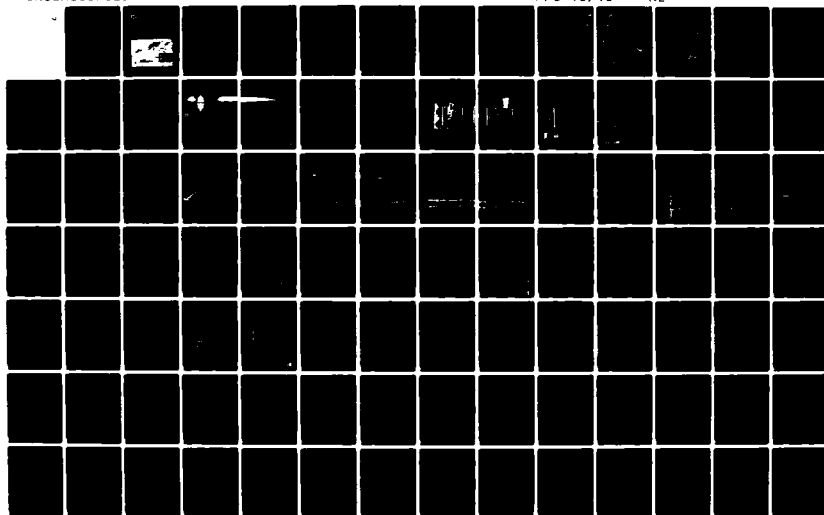
(U) ARMY ENGINEER DISTRICT FORT WORTH TX G M RUEDE

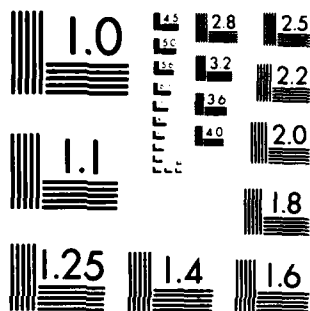
AUG 83

UNCLASSIFIED

F/G 13/13

NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

12



US Army Corps
of Engineers
Fort Worth District

GRANGER LAKE

FINAL FOUNDATION REPORT

EMBANKMENT-OUTLET WORKS-SPILLWAY



DTIC
ELECTE
MAY 25 1984
S E D

VOLUME-2
AUGUST 1983

This document is approved
for public release
Distribution is unlimited

AD-A141 542

DTIC FILE COPY

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
	AD-A141541	
4. TITLE (and Subtitle)		5. TYPE OF REPORT & PERIOD COVERED
Final foundation report, Granger Lake, embankment-outlet works-spillway		Final report 11/72 - 12/79
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s)		8. CONTRACT OR GRANT NUMBER(s)
George M. Ruede, Project Geologist		
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
U.S. Army Corps of Engineers, Fort Worth P.O. Box 17300 Fort Worth, Texas 76102		
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE
U.S. Army Corps of Engineers, Fort Worth P.O. Box 17300 Fort Worth, Texas 76102		August 1983
		13. NUMBER OF PAGES
		2 volumes
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report)
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report)		
Approved for public release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
Embankment Outlet works Foundation Spillway Granger Dam Granger Lake		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		
Granger Dam and Lake, called Laneport Dam and Lake until 3 January 1975, is located in central Texas about 6.5 miles east of Granger, Texas and 9.5 miles northeast of the city of Taylor, Texas. The structure is on the San Gabriel River, 31.9 river miles upstream from its confluence with the Little River. Principal structures of the dam are: a) earthfill embankment approximately 15,240 feet long, maximum height of 114 feet, top elevation of 555 feet, and crown of 30 feet; b) gate controlled outlet works; and c) spillway 950 feet wide, with a crest elevation of 528 feet, located on the right (south) abutment.		

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

* This final foundation report records, documents and provides solutions to problems with regard to foundation conditions (during the construction phase), problems encountered and methods/solutions to resolve foundation problems during actual construction of Granger Dam and Lake. Additionally this report provides information and suggested changes in design of dams (structures) on similar foundations.

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

TABLE OF CONTENTS
VOLUME 2

PLATES

<u>Plate No.</u>	<u>Title</u>	<u>Amplification</u>
1	Project Location	
2	Site Map	Lake map
3	General Plan	Feature layout
4	Plan of Borings I	Boring layout
5	Plan of Borings II	Boring layout
6	Logs of Borings, Embankment Centerline Profile I	Geologic section
7	Logs of Borings, Embankment Centerline Profile II	Geologic section
8	Logs of Borings, Embankment Centerline Profile III	Geologic section
9	Typical Sections	Typical embankment sections including cut-off, Sta 0+00 to Sta 60+00
10	Typical Embankment Sections	Sta 51+00 to Sta 158+80
11	Inspection Trench, Geology and Excavation, Sta 1+90 to Sta 11+76	
12	Cutoff Trench, Geology and Excavation, Sta 25+33 to Sta 36+00	
13	Cutoff Trench, Geology and Excavation, Sta 36+00 to Sta 56+00	
14	Cutoff Trench, Geology and Excavation, Sta 56+00 to Sta 76+00	
15	Cutoff Trench, Geology and Excavation, Sta 76+00 to Sta 86+00	
16	Cutoff Trench, Geology and Excavation, Sta 86+00 to Sta 103+00	



Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

TABLE OF CONTENTS (continued)

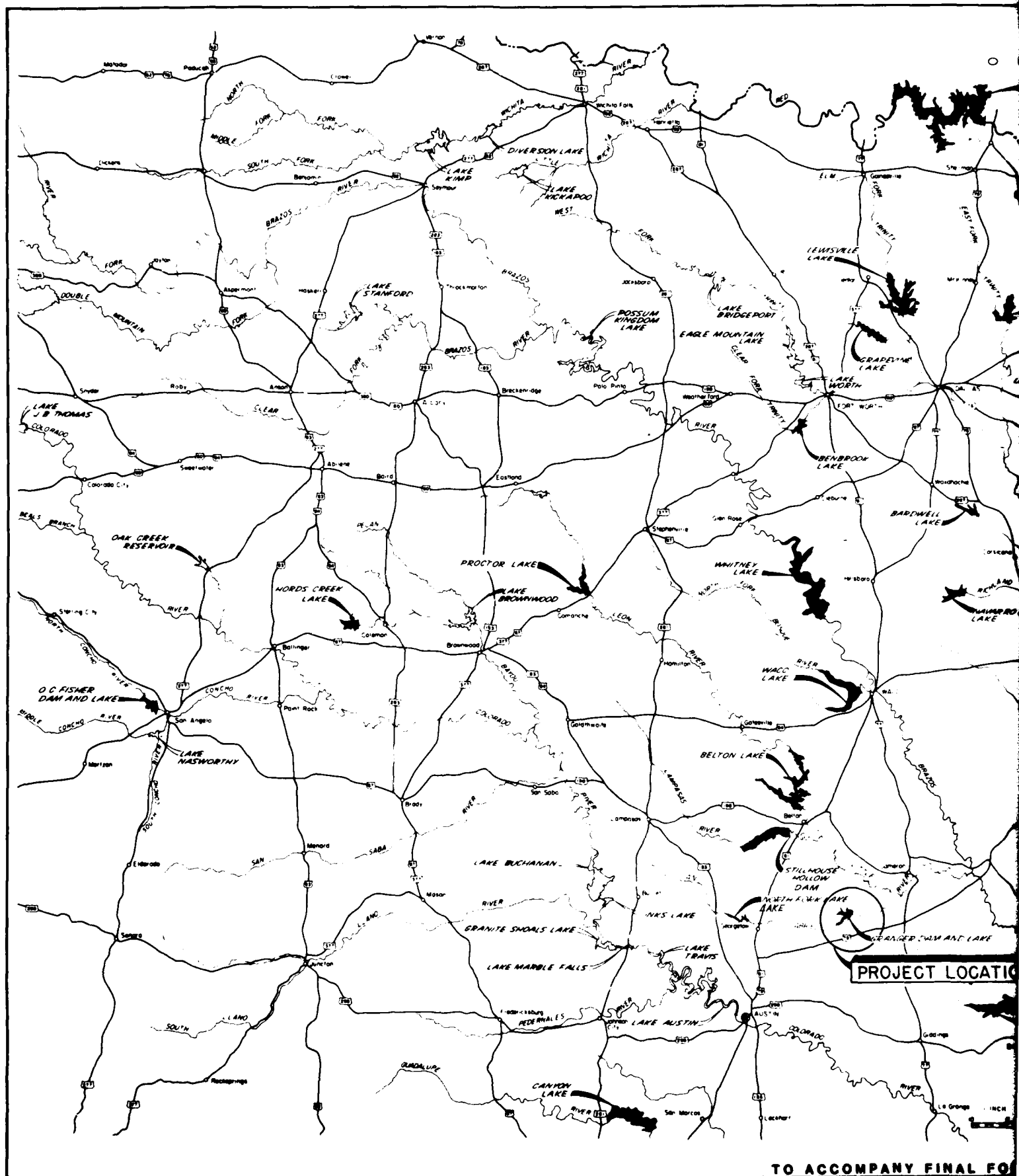
<u>Plate No.</u>	<u>Title</u>	<u>Amplification</u>
17	Cutoff Trench, Geology and Excavation, Sta 103+00 to Sta 123+00	
18	Cutoff Trench, Geology and Excavation, Sta 123+00 to Sta 141+00	
19	Cutoff Trench, Geology and Excavation, Sta 141+00 to Sta 159+00	
20	General Plan and Profile	Outlet section, backfill plan, and end area excavation
21	Limits of Outlet Works Excavation	Excavation plan and section
22	Excavation Sections (Outlet Works)	Excavation and structural sections
23	Geologic Profile on Centerline	Outlet works
24	Geologic Profiles, Section B-B	Outlet works
25	Geologic Profiles, Section C-C and D-D	Outlet works
26	General Elevations	Outlet works intake tower elevations and plan
27	Conduit Concrete and Reinforcing Details	Outlet works conduit sections and details
28	General Plan and Section	Outlet works section and plan of chute and stilling basin
29	Outlet Works, Geology and Excavation, Sta 3+55 to Sta 10+00	

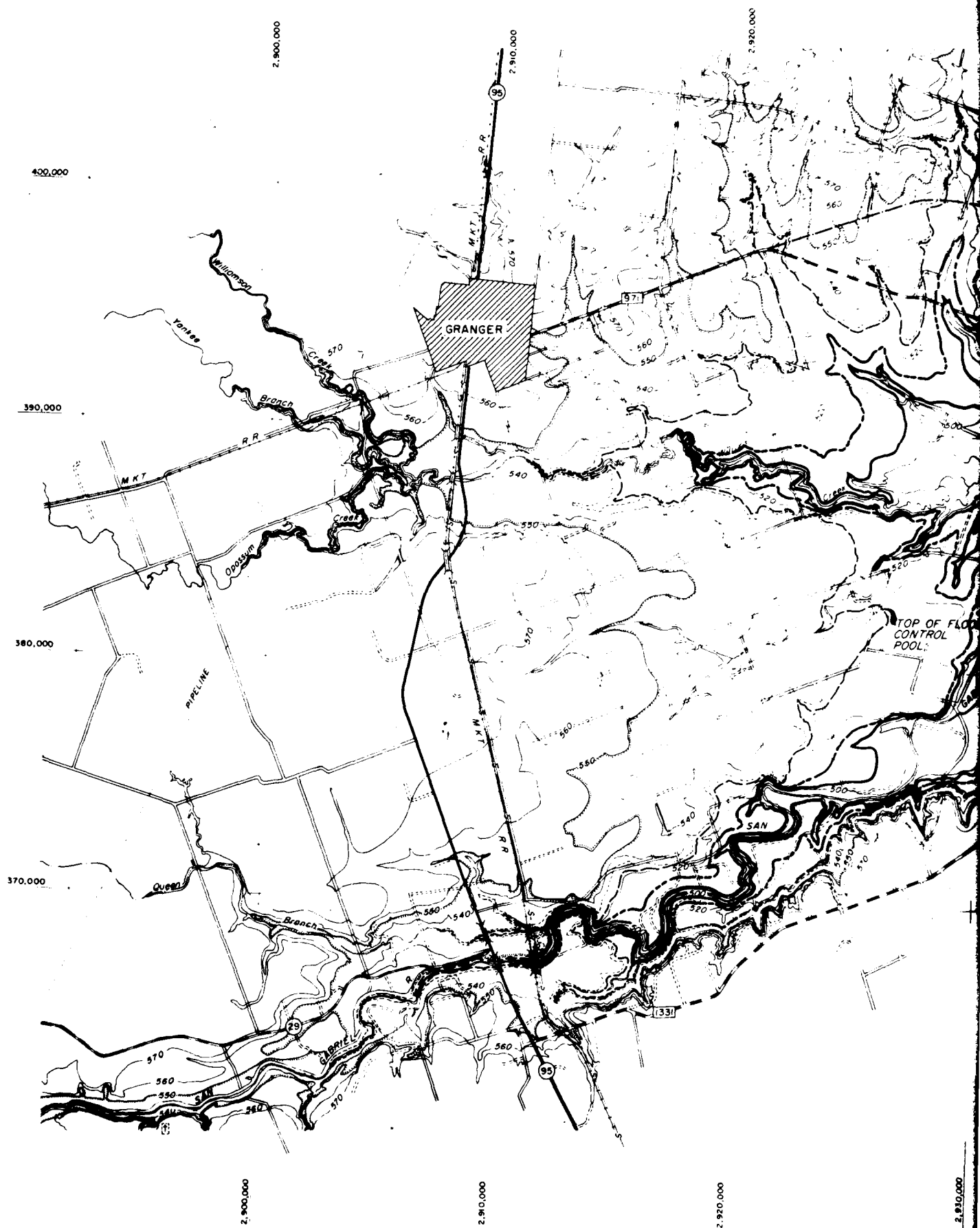
TABLE OF CONTENTS (continued)

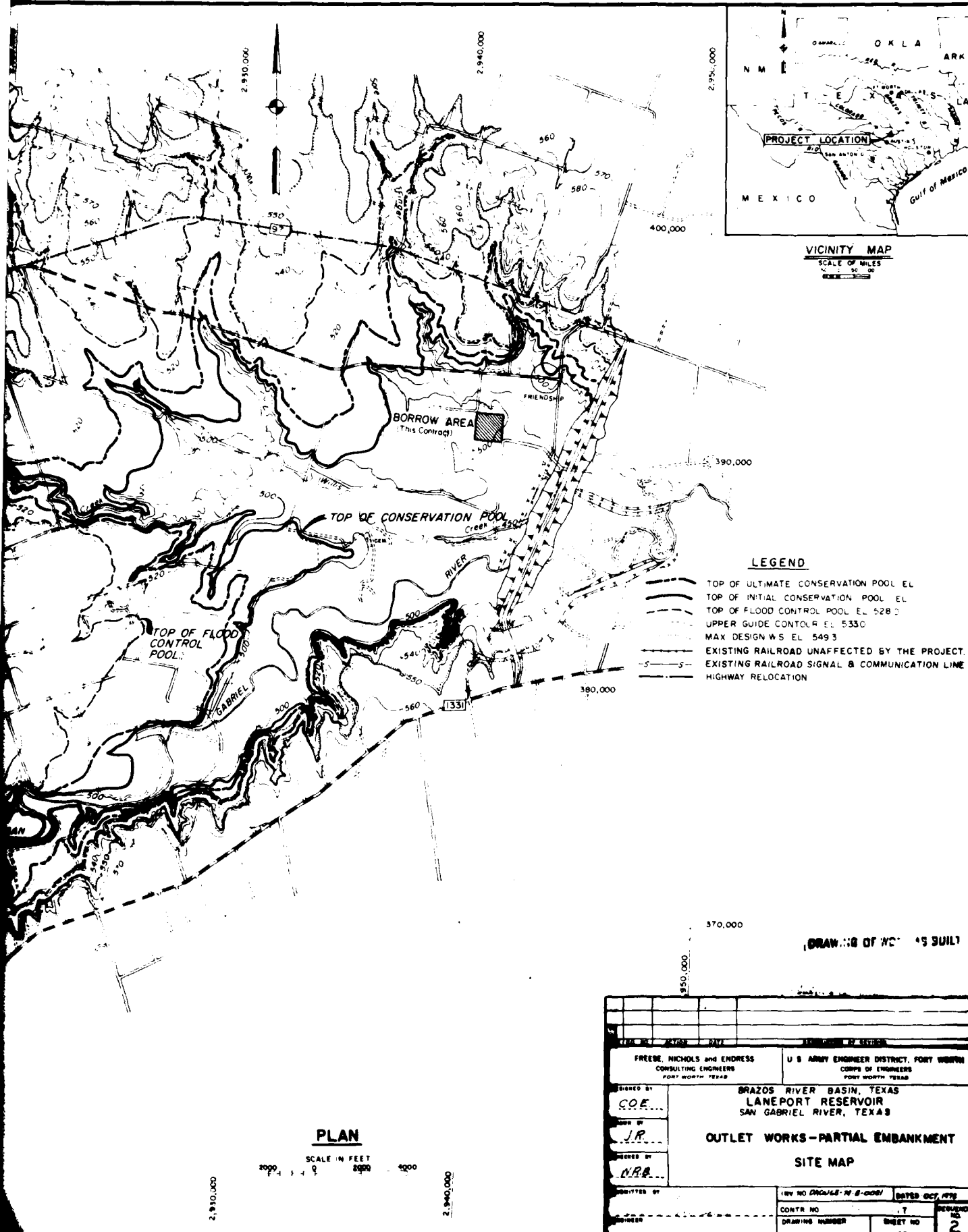
<u>Plate No.</u>	<u>Title</u>	<u>Amplification</u>
30	Outlet Works, Geology and Excavation, Sta 10+00 to Sta 18+00	
31	Excavation Plan and Sections	Spillway, detail sections only
32	Spillway, Right Half	Geology and excavation
33	Spillway, Left Half	Geology and excavation
34	Centerline Geologic Structure, Outlet Centerline Elevation Spillway Centerline Elevation	
35	Plan, Elevation, and General Notes	Spillway plan and section
36	Left Retaining Wall Plan and Elevation	Spillway plan and section
37	Slab Plan and Sections II	Spillway
38	Slab Plan and Sections	Spillway plan, detail sections, and anchor locations
39	Slab Section A-A I Concrete	Spillway sec- tions, includ- ing drainage and anchors
40	Slab Section A-A II Concrete	Spillway sec- tions including drainage and anchors
41	Slab Section A-A Reinforcing	Spillway (in- cluded for key reinforcing)
42	Drainage System Layout	Spillway plan and section

TABLE OF CONTENTS (continued)

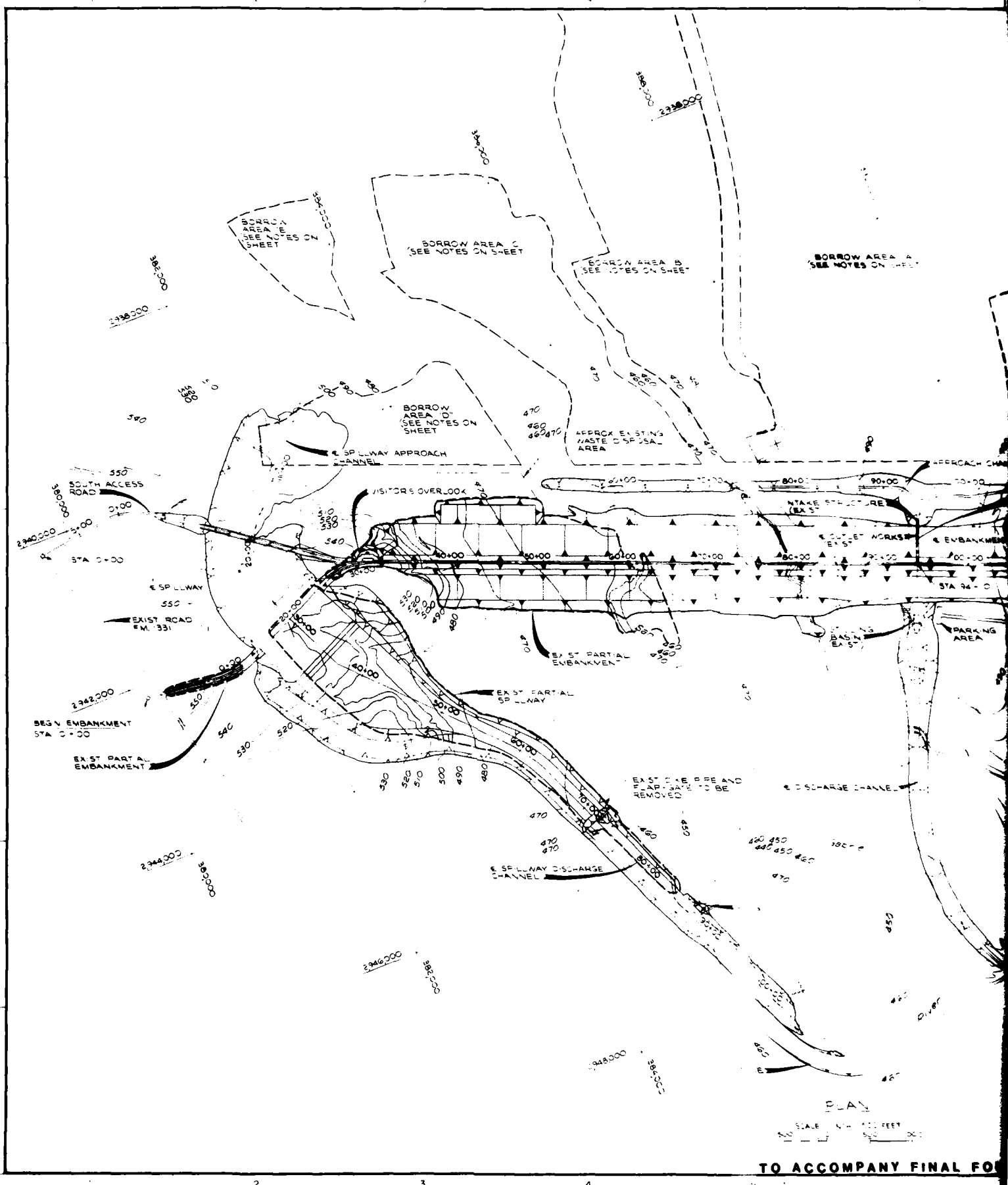
<u>Plate No.</u>	<u>Title</u>	<u>Amplification</u>
43	Slab Drainage System Section D-D I	Spillway sections only
44	Slab Drainage System Section D-D II	Spillway sections only
45	Logs of Borings, Drawing Index	Index to borings 6DC-60 through 8A-599 (Plat 46 through 113)
114	Logs of Borings for Outlet Works Modification, Sta 4+08, 29' LT through Sta 6+37, 25' RT	Borings identified only by sta and offset
115	Logs of Borings for Outlet Works Modification, Sta 7+00, 100' LT through Sta 8+60, centerline	Borings identified only by sta and offset
116	Logs of Borings for Outlet Works Modification, Sta 8+73, centerline through Sta 10+90, 1.5' LT	Borings identified only by sta and offset
117	Logs of Borings for Outlet Works Modification, Sta 11+40, 1' RT through Sta 12+96, 94' LT	Borings identified only by sta and offset



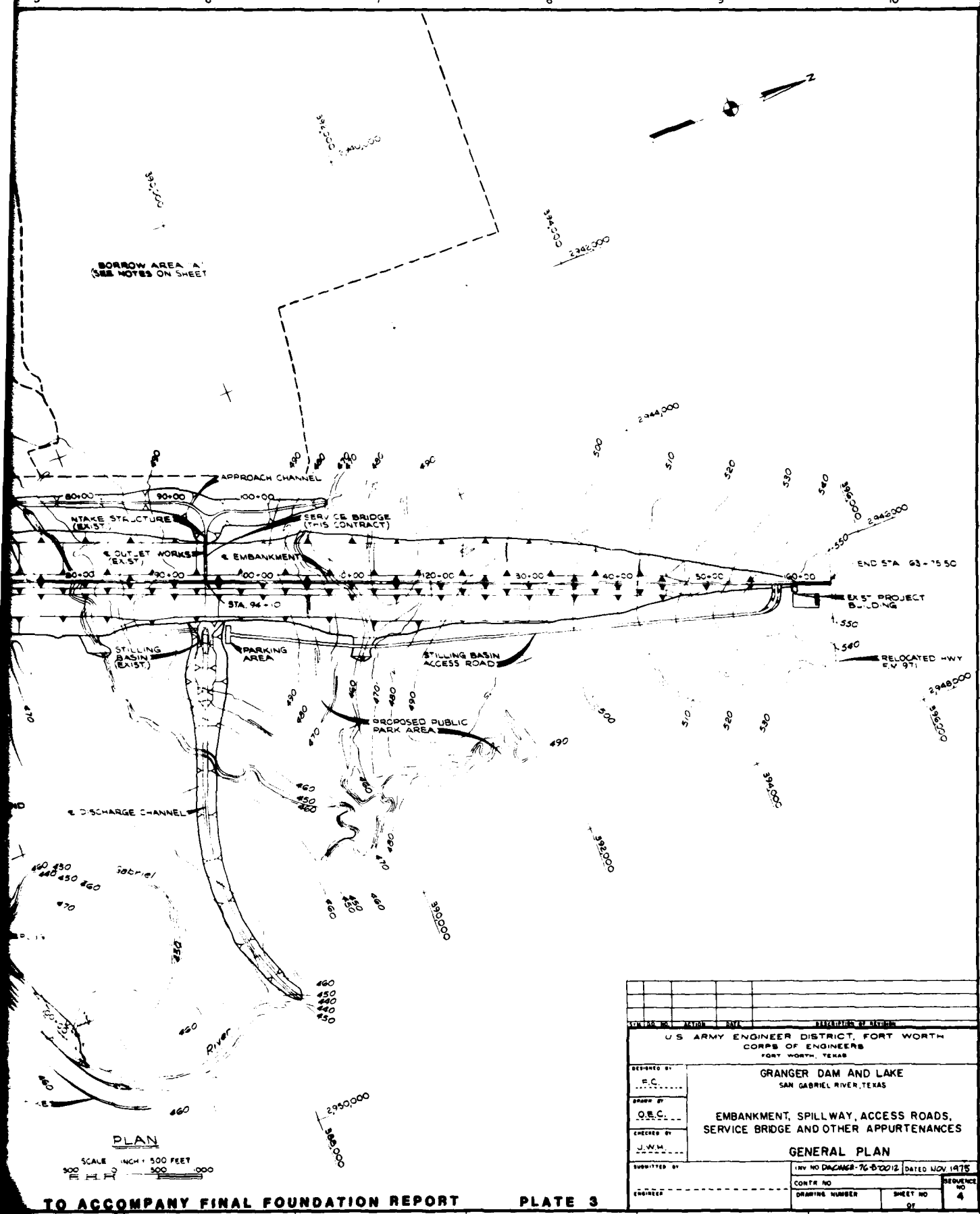




FREEM, NICHOLS and ENDRESS CONSULTING ENGINEERS FORT WORTH, TEXAS		U S ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS	
DESIGNED BY C.O.E.		BRAZOS RIVER BASIN, TEXAS LANEPORTE RESERVOIR SAN GABRIEL RIVER, TEXAS	
CHECKED BY J.R.		OUTLET WORKS-PARTIAL EMBANKMENT	
DRAWN BY C.R.B.		SITE MAP	
APPROVED BY		REV NO (CHANGE IN 8-000)	DATED OCT, 1971
CONTR NO		7	REVISION NO
DRAWING NUMBER		07	2



TO ACCOMPANY FINAL FOI



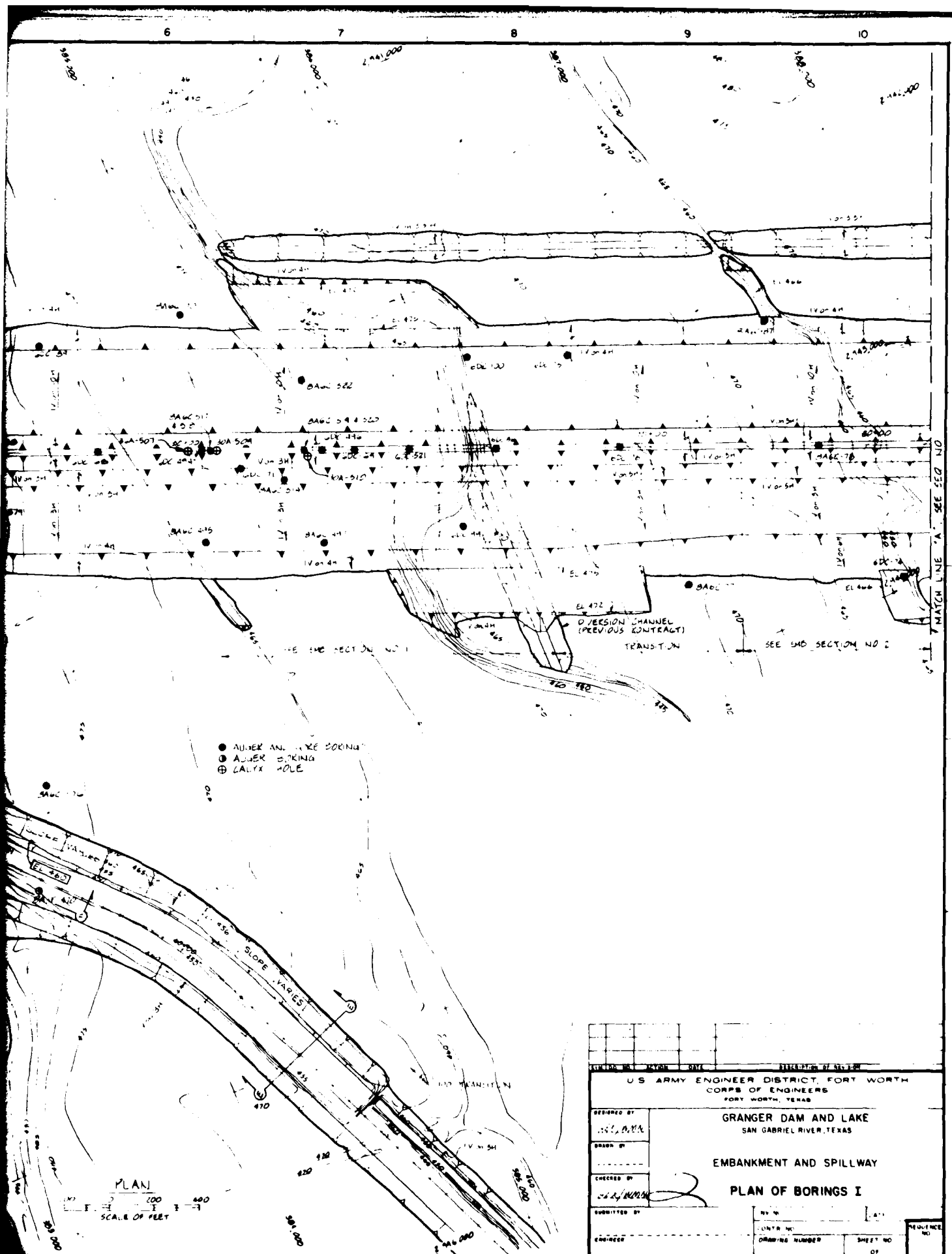
NOTE

CASING SHALL BE REMOVED FROM CALYX HOLE 30A-558
LOCATED AT SPILLWAY STA 29+50 APPROXIMATELY 250'
LEFT OF THE CENTERLINE AND HOLE BACKFILLED TO
FINISHED GRADE WITH LEAN CONCRETE AS DIRECTED
BY THE CONTRACTING OFFICER

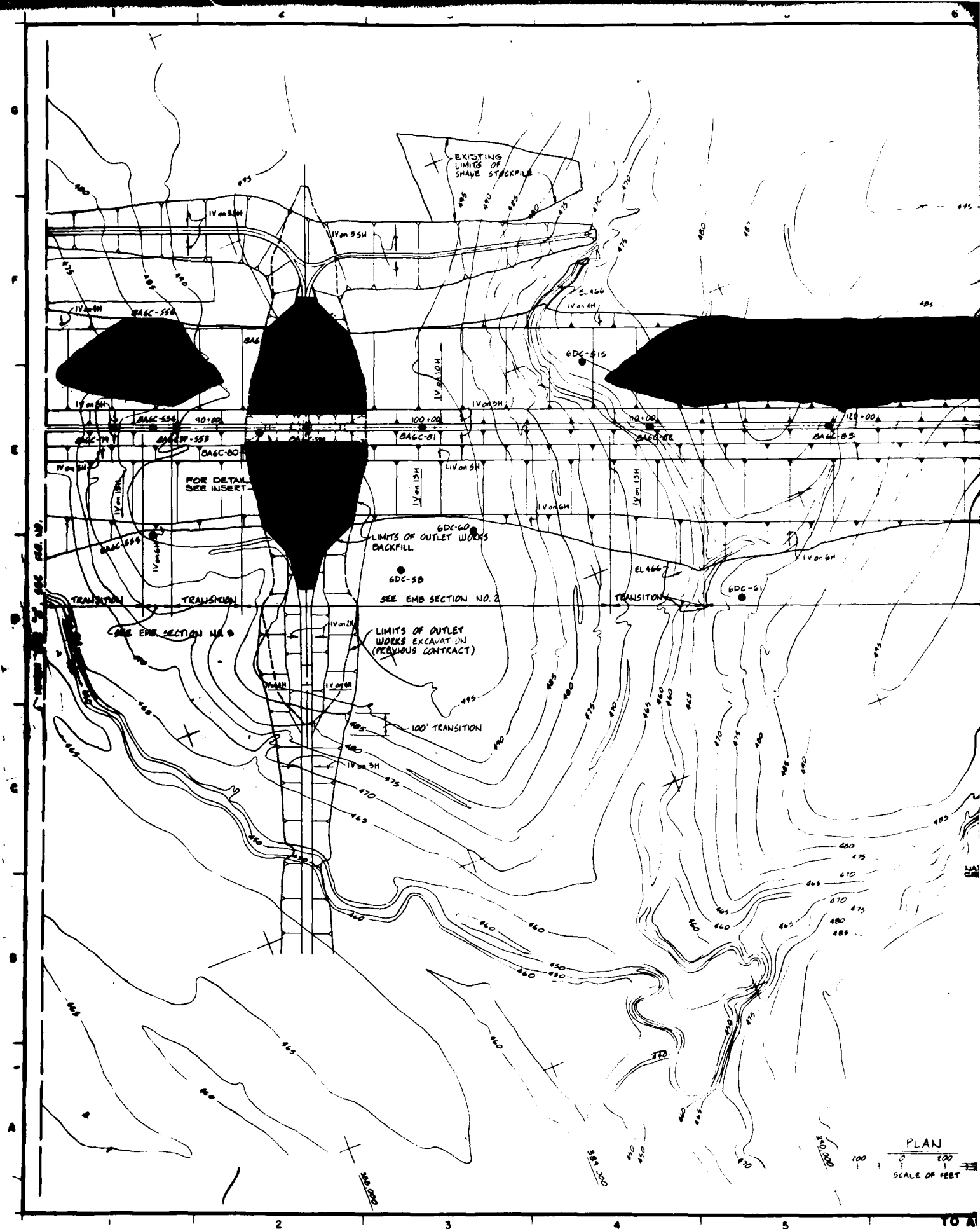
PLAN

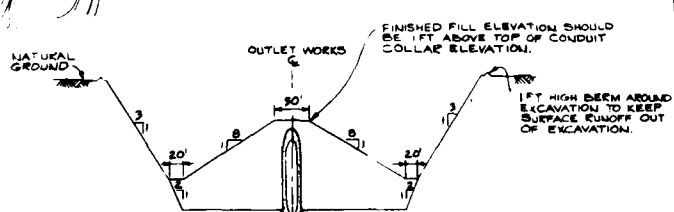
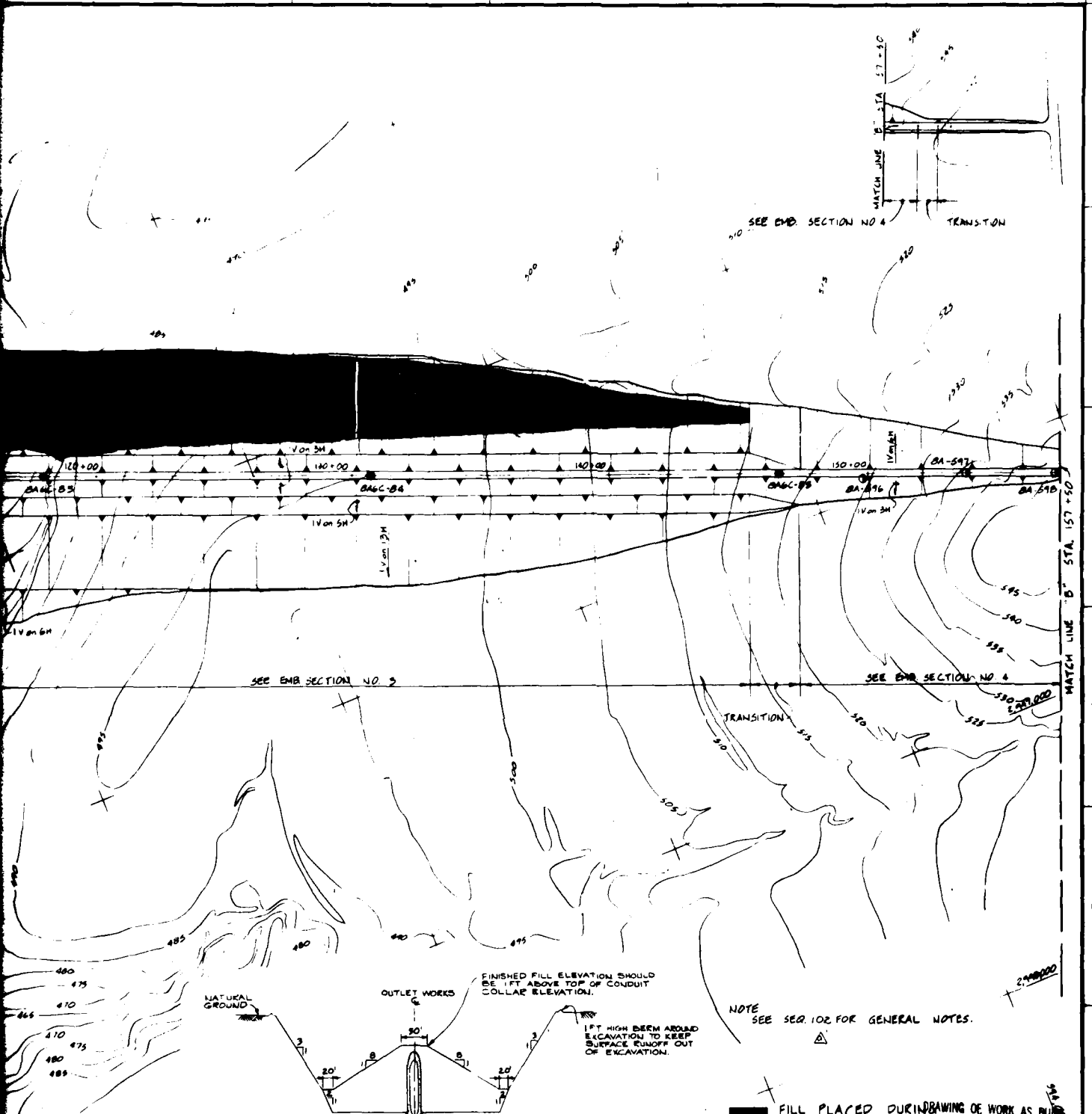
1" = 100'
SCALE OF FEET

TO ACC

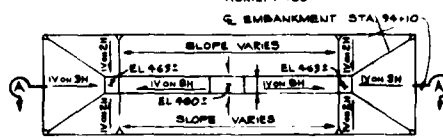


DESIGNED BY <i>[Signature]</i>		U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS	
DRAWN BY <i>[Signature]</i>		GRANGER DAM AND LAKE SAN GABRIEL RIVER, TEXAS	
CHECKED BY <i>[Signature]</i>		EMBANKMENT AND SPILLWAY	
SUBMITTED BY <i>[Signature]</i>		PLAN OF BORINGS I	
CONTRACT NO. DRAWING NUMBER		SHEET NO. OF	
ENGINEER		SEQUENCE NO.	

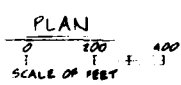




SECTION A-A
SCALE VERT. 1" = 10'
HORIZ. 1" = 50'



PLAN
SCALE 1" = 50'

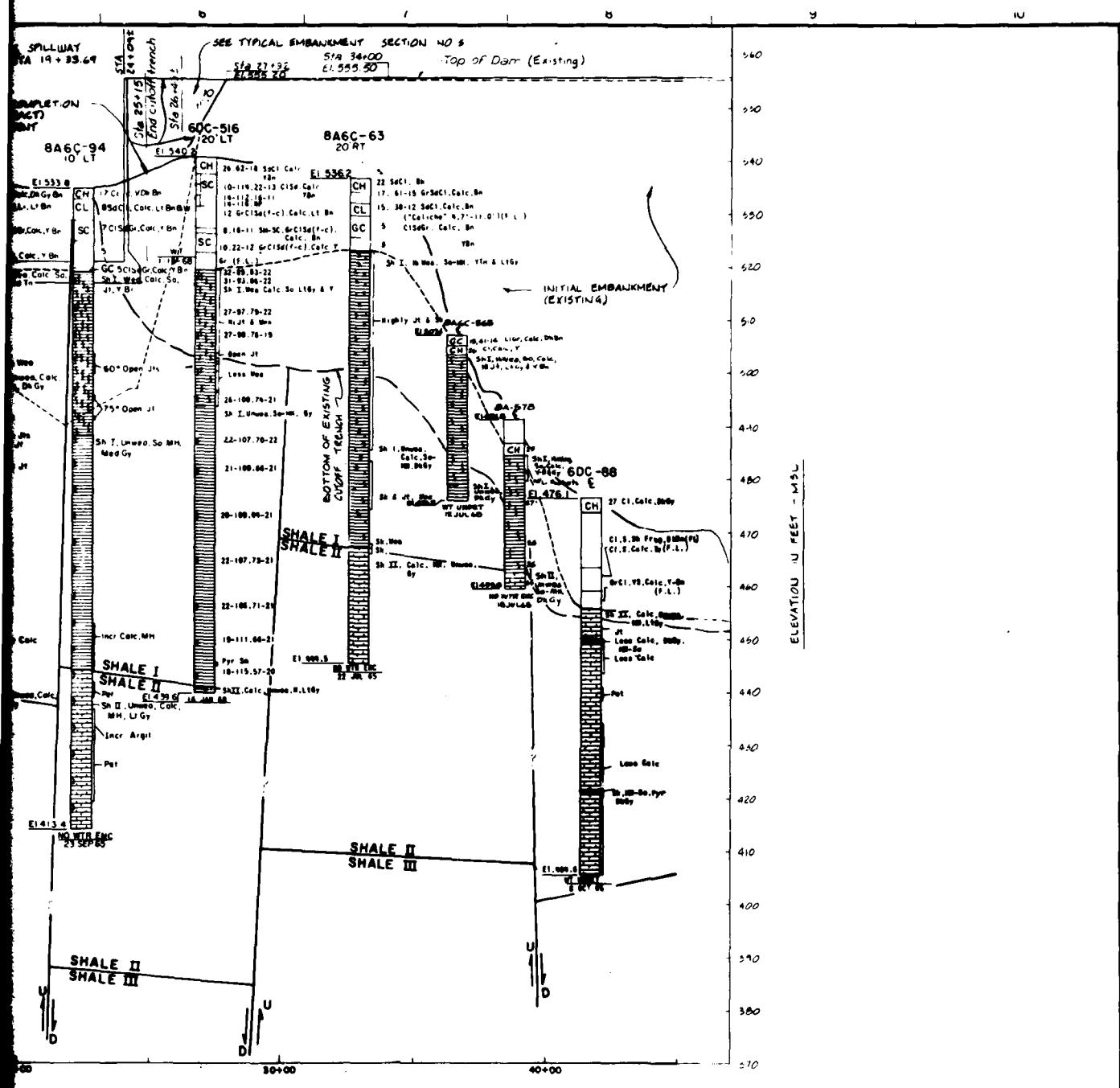


NOTE
SEE SEC. 102 FOR GENERAL NOTES.

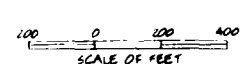
FILL PLACED DURING DRAWING OF WORK AS BUILT
PREVIOUS CONTRACT

AS-BLT. 10/15/60 REVISED AS-BUILT	
AMPOD 10/15/60 REVISED TO REFLECT M.I. CHANGES	
DESIGNED BY HEK/WMN	U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS GRANGER DAM AND LAKE SAN GABRIEL RIVER, TEXAS EMBANKMENT AND SPILLWAY PLAN OF BORINGS II
DRAWN BY	
CHECKED BY HEK/WMN	
SUBMITTED BY	
ENGINEER	INV NO D40003-76-B-0012 DATED NOV. 1976 CONTR NO D40003-76-B-0012 DRAWING NUMBER SHEET NO 103

TO ACCOMPANY FINAL FO

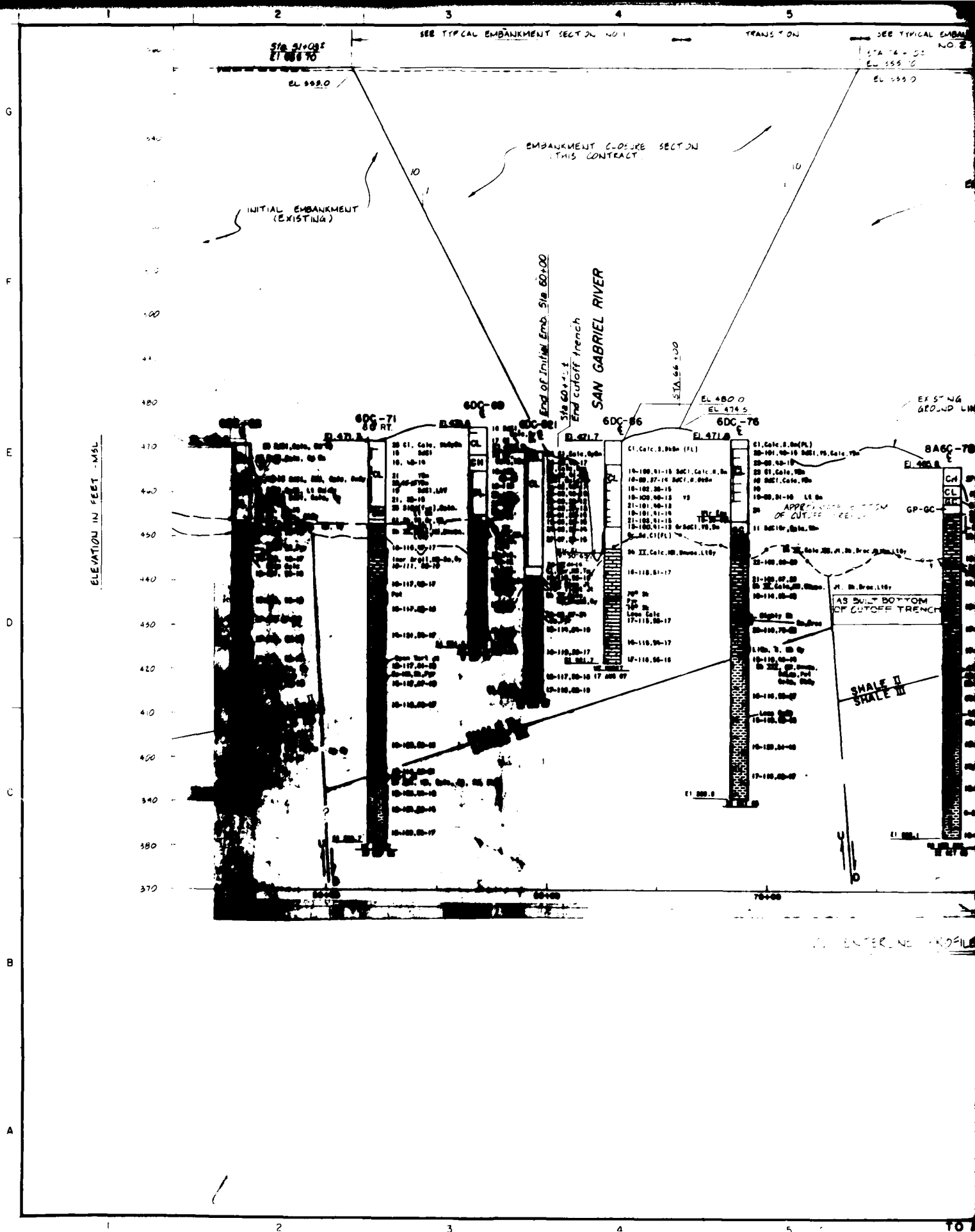


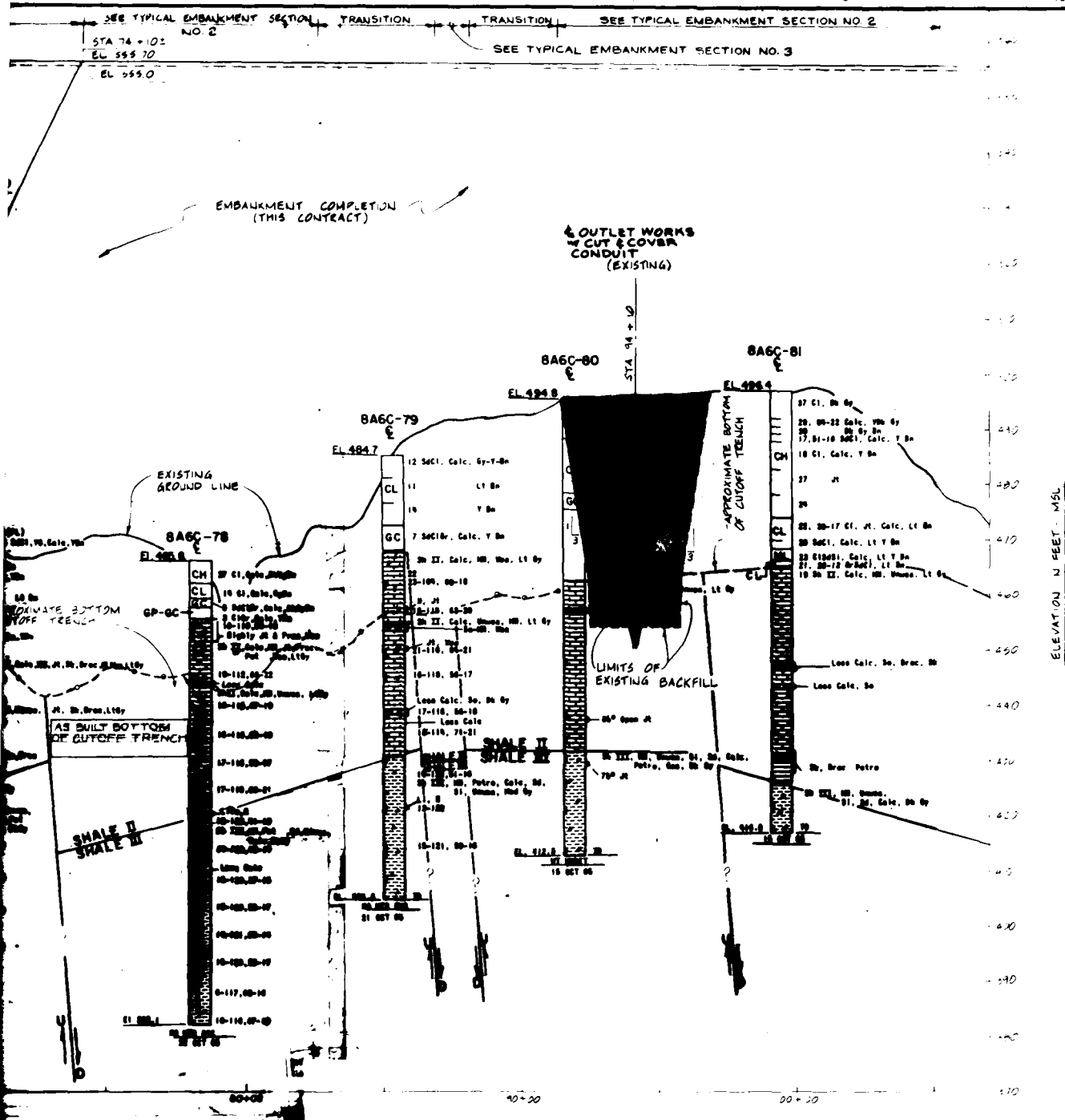
ELEVATION IN FEET - MSL



NOTE
FOR LEGEND AND NOTES SEE SEC

DESIGNED BY <i>W.L. LAMON</i>		DRAWN BY		CHECKED BY <i>W.L. LAMON</i>		SUBMITTED BY	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS							
GRANGER DAM AND LAKE SAN GABRIEL RIVER, TEXAS							
EMBANKMENT AND SPILLWAY LOGS OF BORINGS EMBANKMENT CENTERLINE PROFILE I							
CONTRACT NO.				DRAWING NUMBER		SHEET NO.	
109				109		109	





△ CENTERLINE PROFILE

NOTES
1. FOR GENERAL AND NOTES SEE SPEC 101.
2. FOR DETAILS OF CLOSURE SECTION SEE SPEC 104.

AS-BUILT LOGS/REVISED AS-BUILT	
APPROXIMATE BOTTOM OF CUTOFF TRENCH	
REVISIONS	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS	
DESIGNED BY M. J. BROWN	GRANGER DAM AND LAKE SAN GABRIEL RIVER, TEXAS
DRAWN BY	EMBANKMENT AND SPILLWAY LOGS OF BORINGS EMBANKMENT CENTERLINE PROFILE II
CHECKED BY M. J. BROWN	
SUBMITTED BY	
ENGINEER	
DRAWING NUMBER	SEQUENCE NO.
SHEET NO.	110

STA 140+00
EL 553.40

SEE TYPICAL EMBANKMENT SECTION

STA 146+44 END STATION
EL 555.0

TRANSITION

TRANSITION

ACCESS ROAD
(EXISTING)

8A6C-85

EL 518.5

CH

27-01, 04-05

29-04, 01, 1, 04

27

29-06, 06-24

29-07, 01-23

Shale, 04-05

27-08, 04-23

Sh

Sh I, Shale, 04-08, 04-05

29-107, 72-23

Sh

29-107, 06-21

EL 550.0

SHALE I
SHALE II

SHALE I
SHALE II

SHALE I
SHALE II

SHALE I
SHALE II

140+00

150+00

160+00

ELEVATION IN FEET - MSL

APPROXIMATE BOTTOM
OF CUTOFF TRENCH

2007, Calc, T-04

2008, Calc, T-04

2009, Calc, LT V

2010, Calc, LT V

2011, Calc, LT V

2012, Calc, LT V

2013, Calc, LT V

2014, Calc, LT V

2015, Calc, LT V

2016, Calc, LT V

2017, Calc, LT V

2018, Calc, LT V

2019, Calc, LT V

2020, Calc, LT V

2021, Calc, LT V

2022, Calc, LT V

2023, Calc, LT V

2024, Calc, LT V

2025, Calc, LT V

2026, Calc, LT V

2027, Calc, LT V

2028, Calc, LT V

2029, Calc, LT V

2030, Calc, LT V

2031, Calc, LT V

2032, Calc, LT V

2033, Calc, LT V

2034, Calc, LT V

2035, Calc, LT V

2036, Calc, LT V

2037, Calc, LT V

2038, Calc, LT V

2039, Calc, LT V

2040, Calc, LT V

PROFILE

200 0 100 400
SCALE OF FEET

Notes of ground water levels opposite boring logs are well represented by the ground water table and to be considered as the foundation of the vertical reference of the borings.

Figures to the right of boring logs are water contents in percent of the dry weight, dry density, specific gravity, and plastic limit. (20-00, 14-11)

All determinations of water content are laboratory determinations except where noted.

Notes 1 - Shale II and Shale III contain all contents determined by 20-00, 14-11.

Notes 2 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 3 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 4 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 5 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 6 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 7 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 8 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 9 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 10 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 11 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 12 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 13 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 14 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 15 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 16 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 17 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 18 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 19 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 20 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 21 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 22 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 23 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 24 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 25 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 26 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 27 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 28 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 29 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 30 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 31 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 32 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 33 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 34 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 35 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 36 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 37 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 38 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 39 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 40 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 41 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 42 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 43 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 44 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 45 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 46 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 47 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 48 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 49 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 50 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 51 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 52 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 53 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 54 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 55 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 56 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 57 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 58 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 59 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 60 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 61 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 62 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 63 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 64 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 65 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 66 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 67 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 68 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 69 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 70 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 71 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 72 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 73 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 74 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 75 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 76 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 77 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 78 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 79 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 80 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 81 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 82 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 83 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 84 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 85 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 86 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 87 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 88 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 89 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 90 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 91 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 92 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 93 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 94 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 95 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 96 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 97 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 98 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 99 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

Notes 100 - Shale I and Shale II contain all contents determined by 20-00, 14-11.

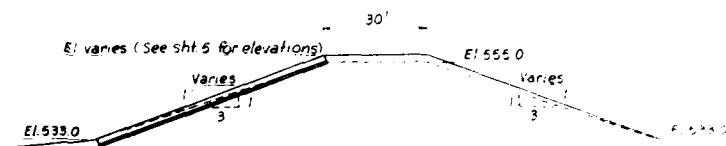
DESIGNED BY	GRANGER DAM AND LAKE SAN GABRIEL RIVER, TEXAS		
DRAWN BY	EMBANKMENT AND SPILLWAY LOGS OF BORINGS EMBANKMENT CENTERLINE PROFILE III		
CHECKED BY	REVISED AS BUILT		
SUBMITTED BY	DATE	REVISED AS BUILT	REVISION OF SECTION
ENGINEER	DATE	REVISED AS BUILT	REVISION OF SECTION
CLINCH NO	DATE	REVISED AS BUILT	REVISION OF SECTION
DRAWING NUMBER	DATE	REVISED AS BUILT	REVISION OF SECTION
SHEET NO	DATE	REVISED AS BUILT	REVISION OF SECTION
OF	DATE	REVISED AS BUILT	REVISION OF SECTION

TO ACCOMPANY FINAL FOUNDATION REPORT

PLATE 8

3

1/1 3/1/1

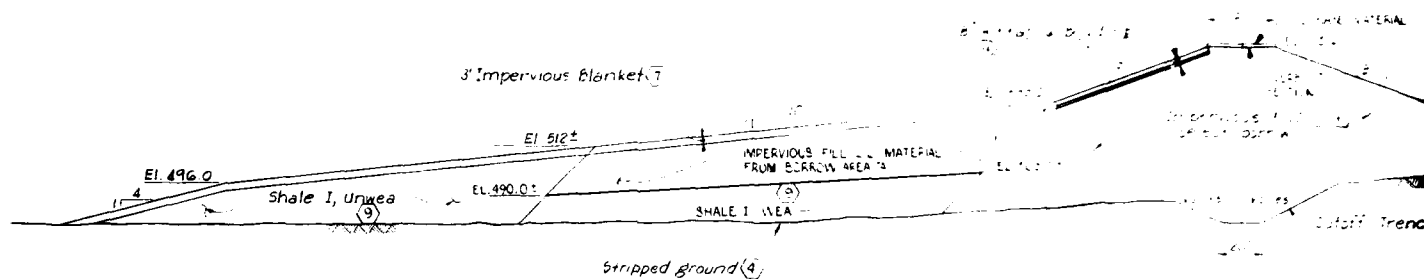


TYPICAL SECTION
(EMBANKMENT OVERBUILD)
NOT TO SCALE

Notes

- 1 Embankment width is limited to the crown and is above El 533.0
- 2 See sheet 5 for final grade of embankment overbuild

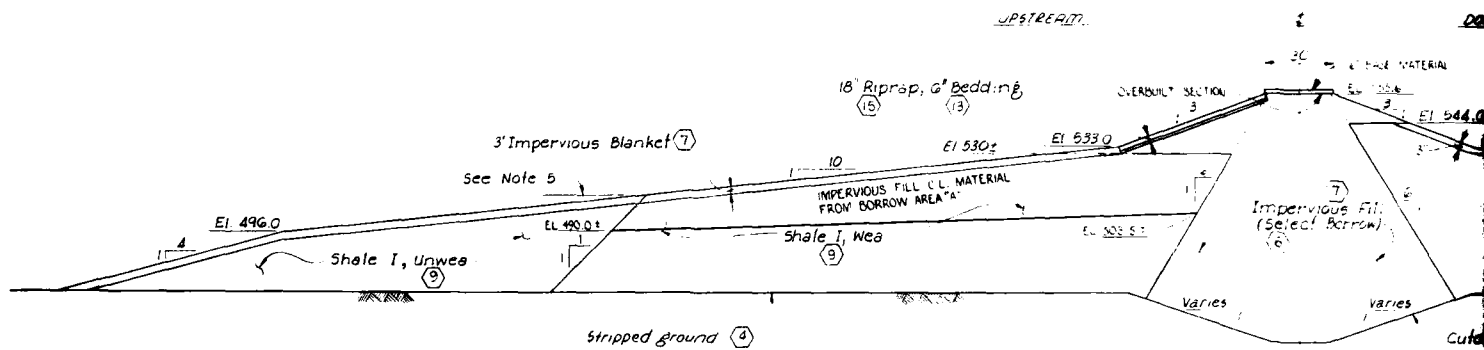
STA 0+00 TO STA 12+10 ±



△ STA 26+40 ± TO STA 38+00

SCALE 1 INCH = 30 FEET

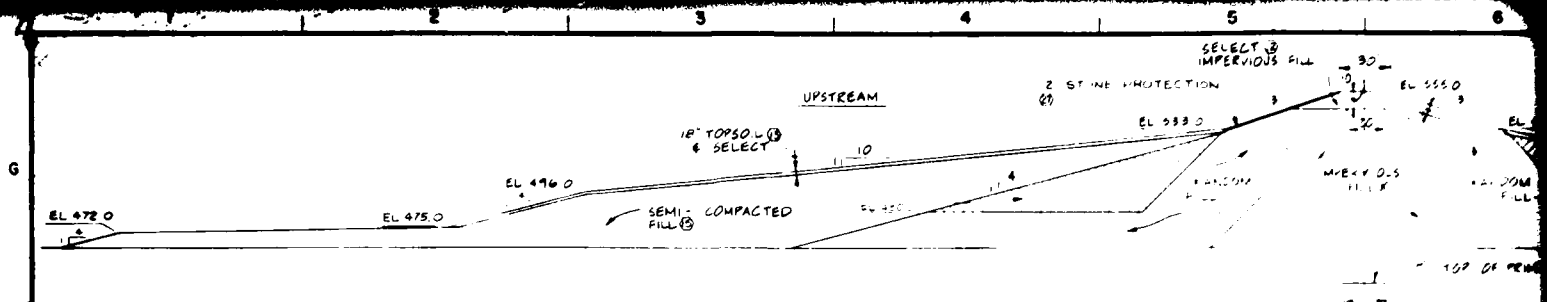
30 60



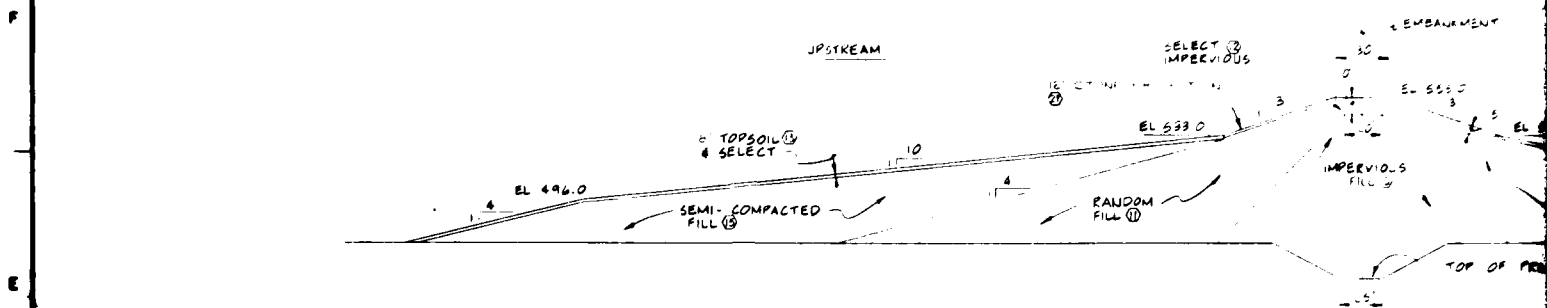
△ STA 39+50 TO STA 60+00 ±

SCALE 1 INCH = 30 FEET

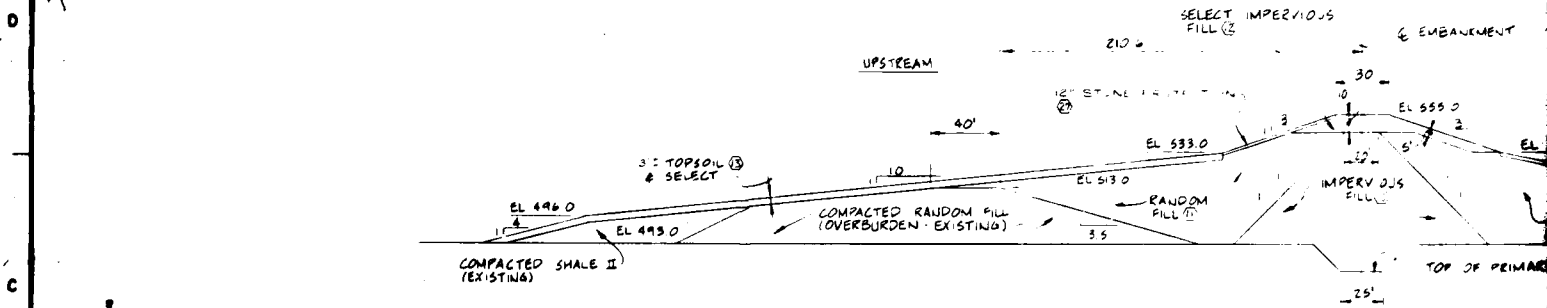
30 60



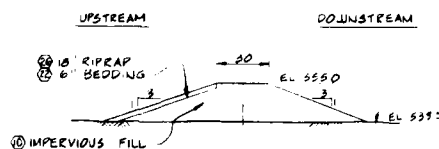
TYPICAL EMBANKMENT SECTION
STA 5+00 TO 6+00



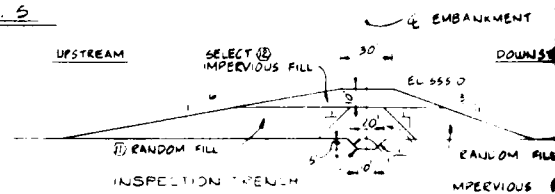
TYPICAL EMBANKMENT SECTION
STA 74+00 TO 8+00
STA 91+20 TO 10+00



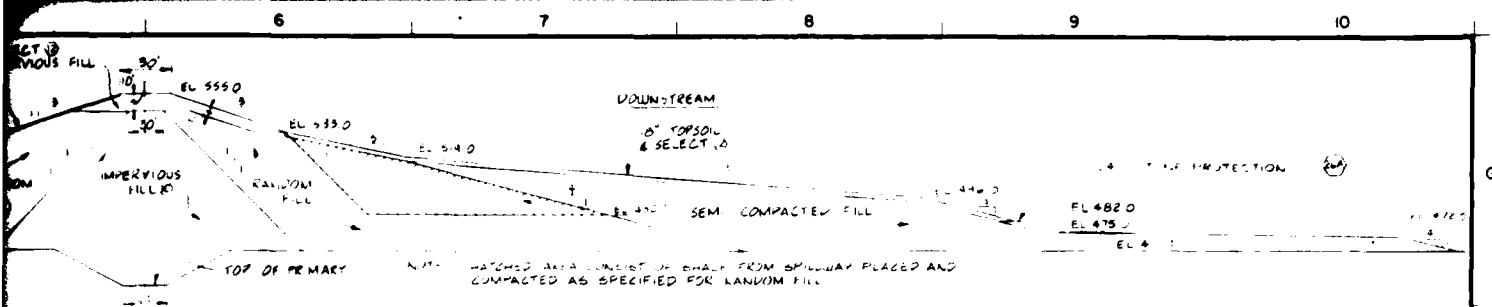
TYPICAL EMBANKMENT SECTION
STA 86+70 TO 88+00
STA 112+30 TO 145+50



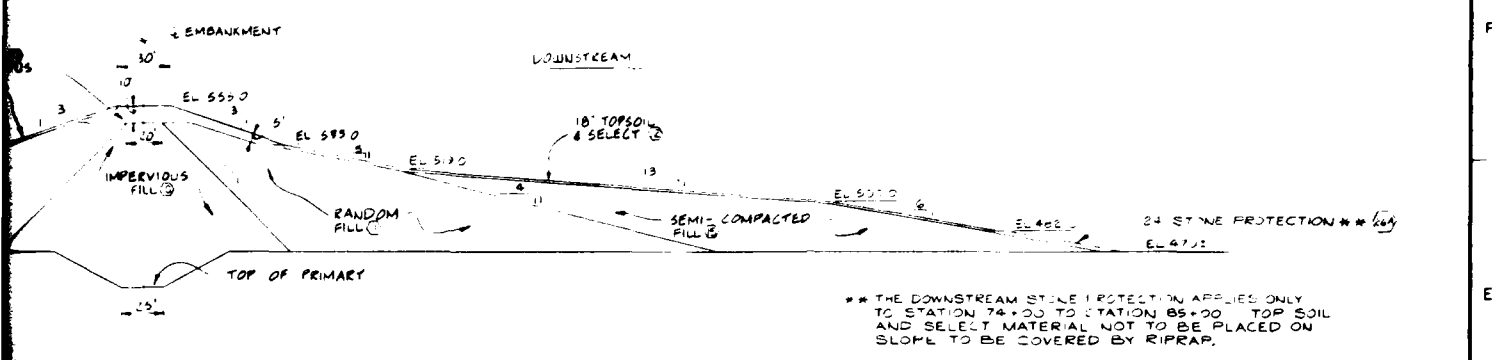
TYPICAL EMBANKMENT SECTION NO. 5
STA 13+25 TO 14+58
STA 24+09 TO 27+92



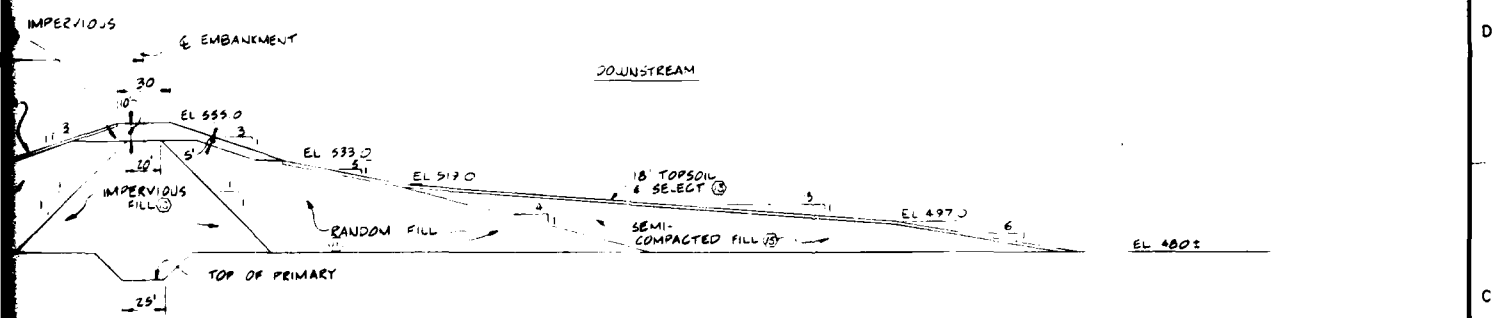
TYPICAL EMBANKMENT SECTION
STA 147+50 TO 158+80



TYPICAL EMBANKMENT SECTION NO. 1
 STA 51+00 TO 56+00



TYPICAL EMBANKMENT SECTION NO. 2
 STA 74+00 TO 85+00
 STA 91+20 TO 108+00

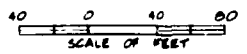


EMBANKMENT SECTION NO. 3
 STA 86+70 TO 88+00
 STA 112+30 TO 145+50

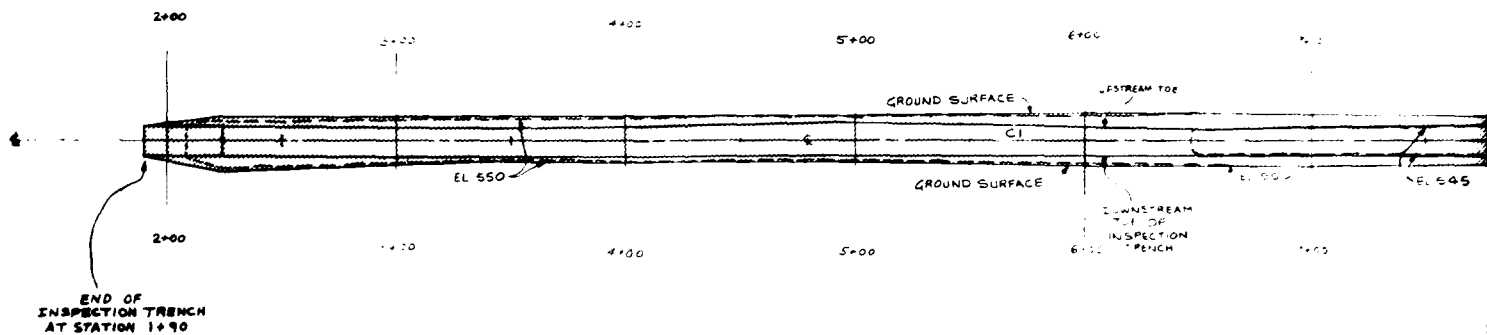


EMBANKMENT SECTION NO. 4
 STA 147+50 TO 158+80







2

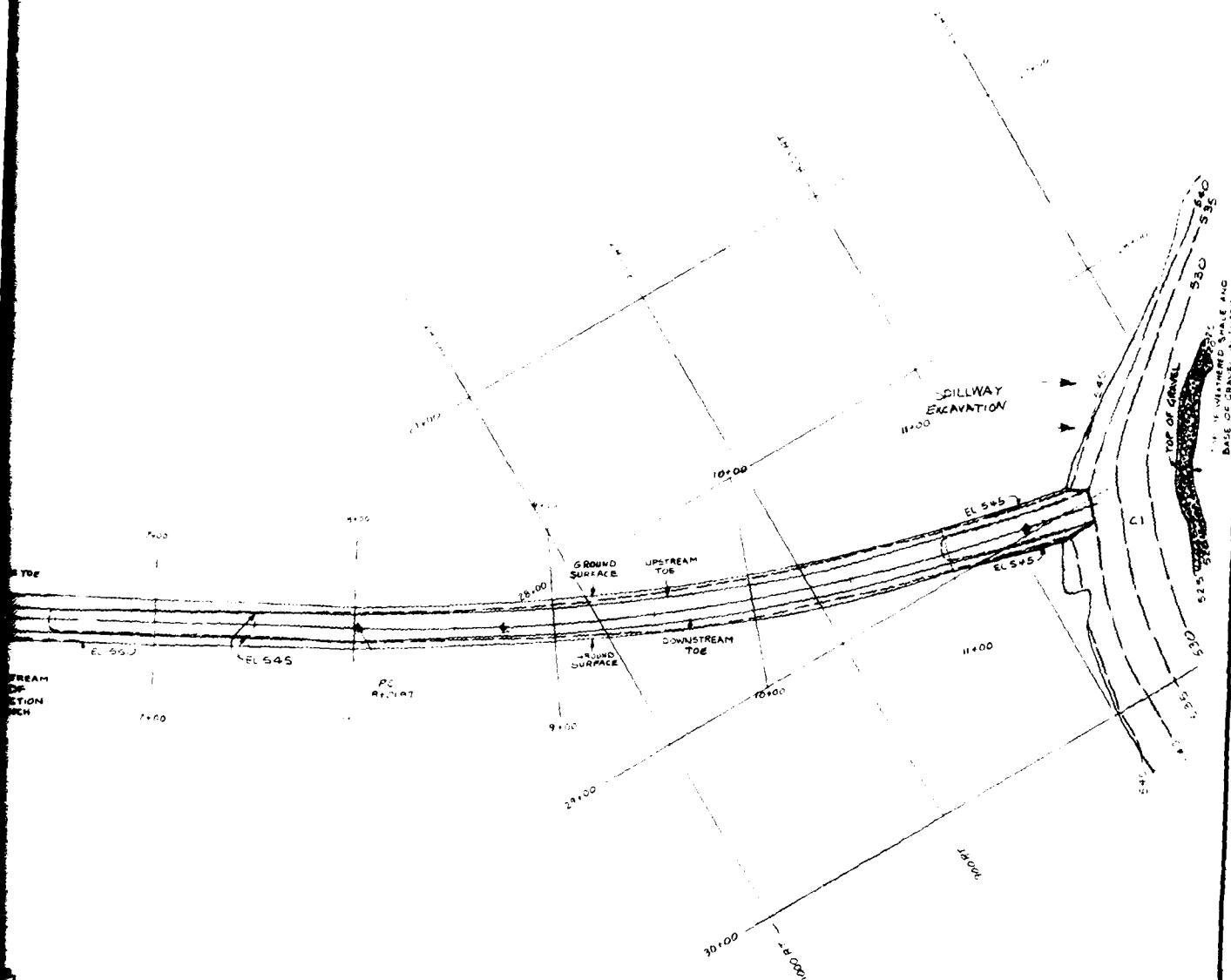


DESIGNED BY M. E. J. J. J.		DRAWN BY C. M. B.		CHECKED BY M. E. J. J. J.		SUBMITTED BY		INV NO.		DATED	
CONTR NO.		ACTION		DATE		DESCRIPTION OF REVISION		CONTR NO.		SHEET NO.	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS GRANGER DAM AND LAKE SAN GABRIEL RIVER, TEXAS EMBANKMENT TYPICAL EMBANKMENT SECTIONS											
ENGINEER						DRAWING NUMBER		SHEET NO.		OF	



MAP SYMBOLS

- | | |
|---|---|
| <input type="checkbox"/> CLAY |  FAULT, SHOWING DIRECTION OF FAULT DIP |
| <input type="checkbox"/> UN-WEATHERED SHALE |  FAULT, PROBABLE OR POSSIBLE, SHOWING DIRECTION OF FAULT DIP |
| <input type="checkbox"/> WEATHERED SHALE |  DEPRESSION CONTOUR |
| <input checked="" type="checkbox"/> GRAVEL |  DITCH |
| <input type="checkbox"/> SAND | |
|  LITHOLOGIC BOUNDARY | |
|  CONTOUR (ELEVATION OF EXCAVATION SURFACE, M.S.L.) | |

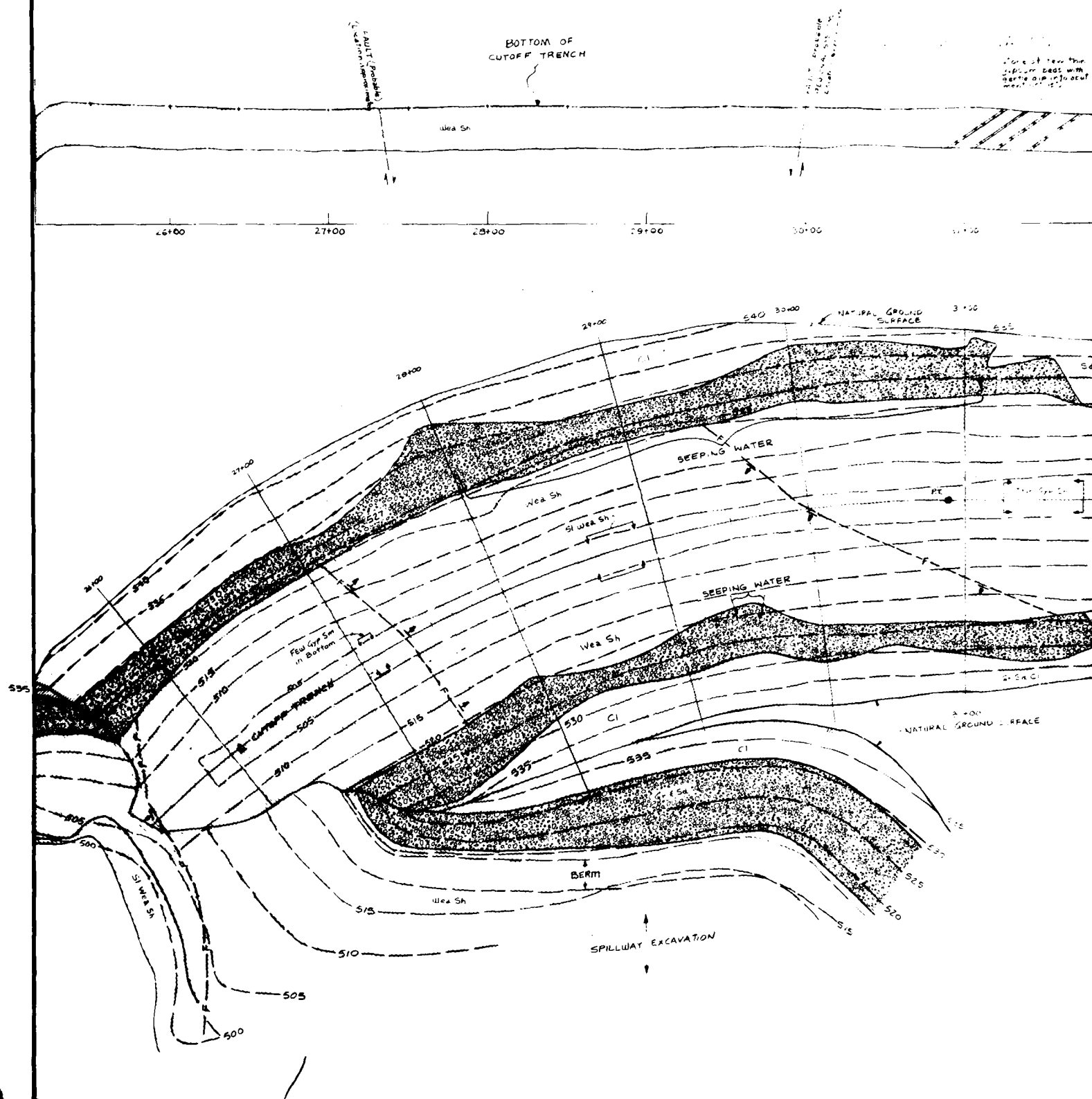


30 0 30 60
SCALE OF FEET

2

GRANGER LAKE
SAN GABRIEL RIVER, TEXAS
FINAL FOUNDATION REPORT
INSPECTION TRENCH
GEOLOGY AND EXCAVATION
STATION 1+90 TO STATION 11+76
U S ARMY ENGINEER DISTRICT, FORT WORTH
FILE NO PLATE II

TO ACCOMPANY FINAL FOUNDATION REPORT

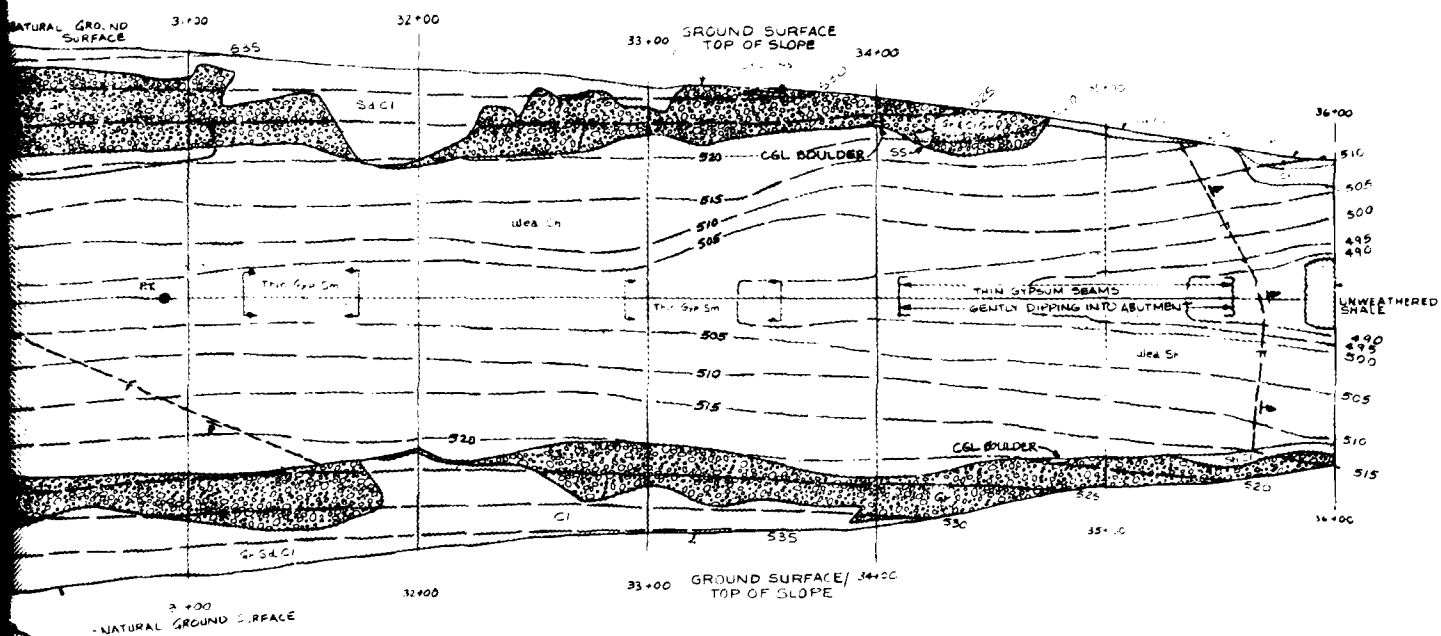
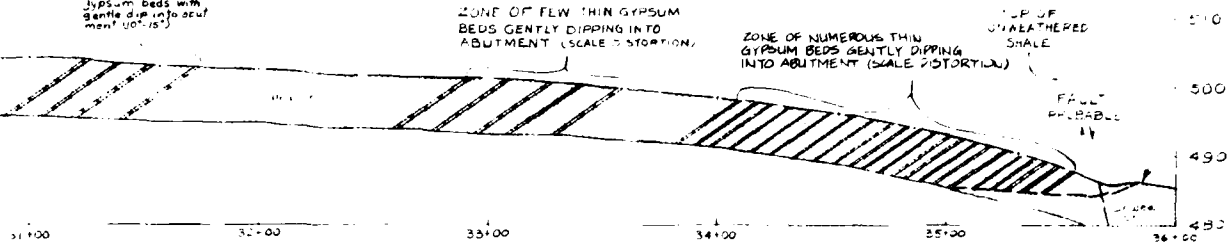


ZONE OF FEW THIN GYPSUM
BEDS GENTLY DIPPING INTO
ABUTMENT (SCALE DISTORTION)

ZONE OF NUMEROUS THIN
GYPSUM BEDS GENTLY DIPPING
INTO ABUTMENT (SCALE DISTORTION)

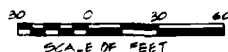
TOP OF
UNWEATHERED
SMALE

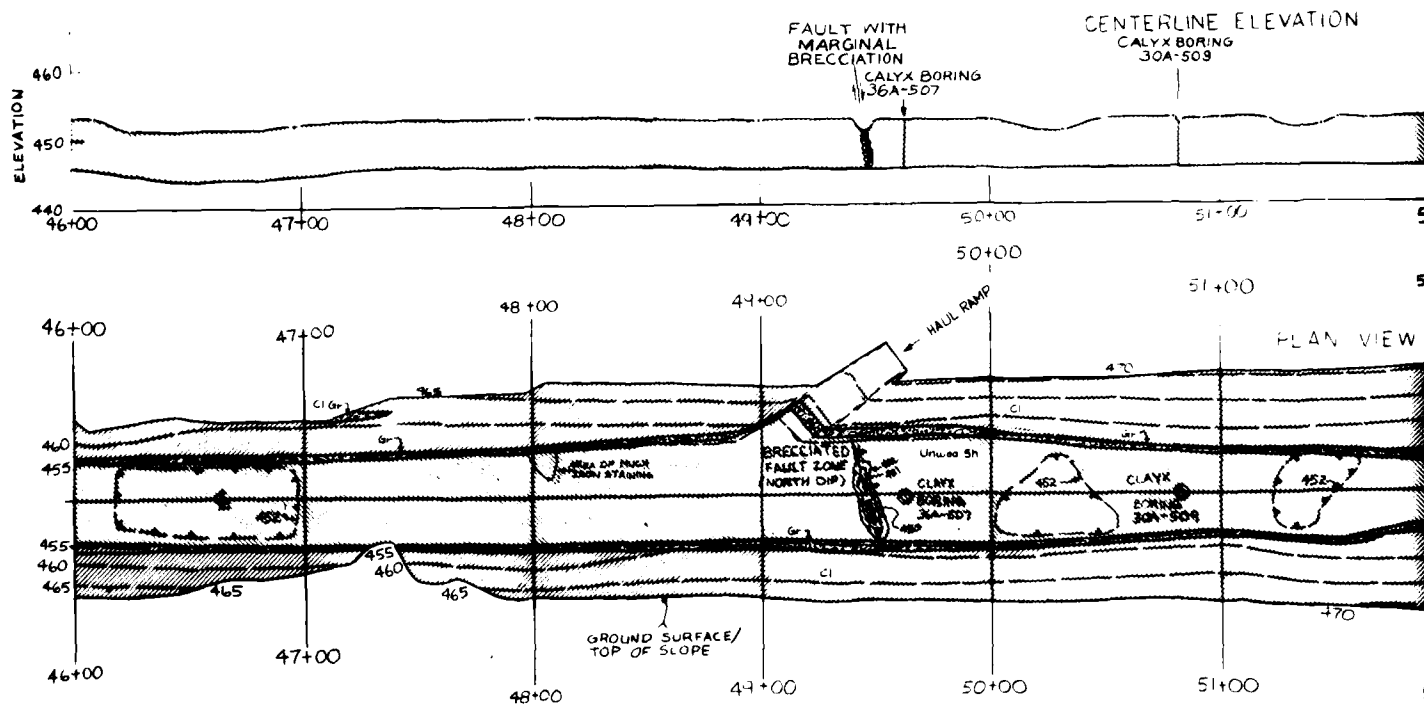
FRANK
FRANKLIN



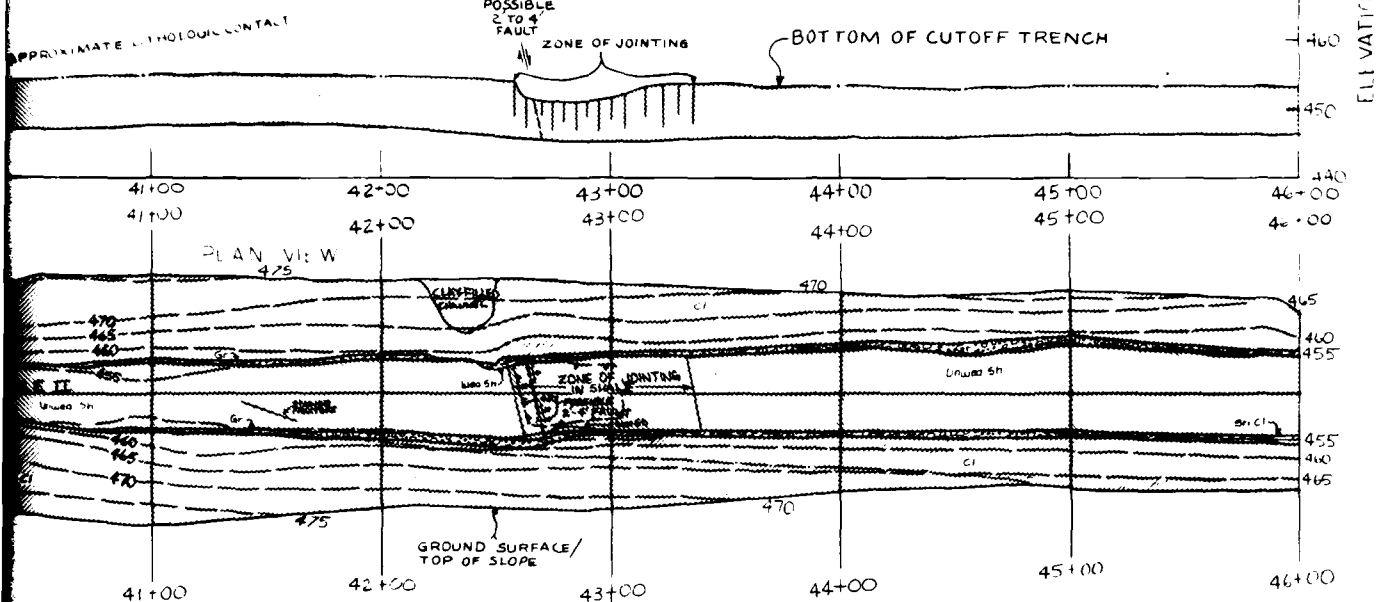
TO ACCOMPANY FINAL FOUNDATION REPORT

NOTE:
FOR MAPPING SYMBOLS, SEE PLATE II

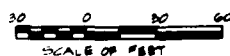
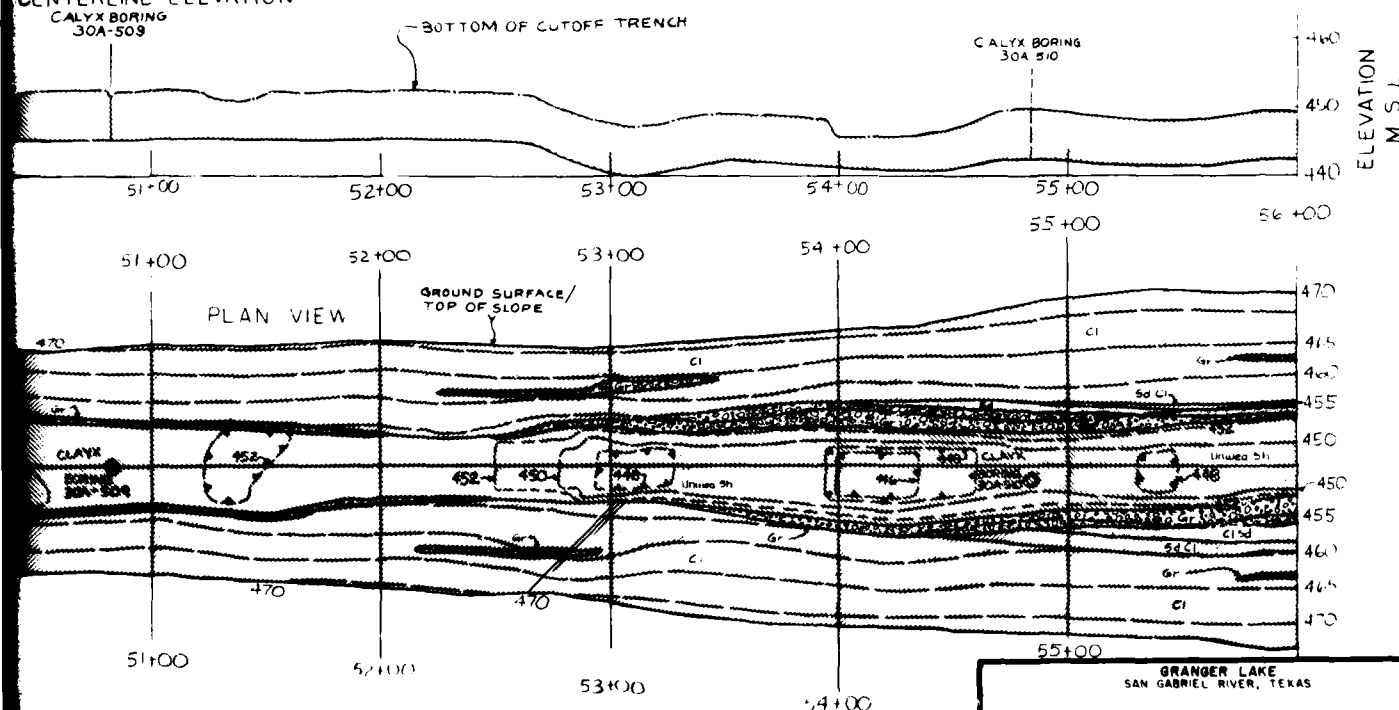




CENTERLINE ELEVATION



CENTERLINE ELEVATION



2

NOTE:
FOR MAPPING SYMBOLS, SEE PLATE II.

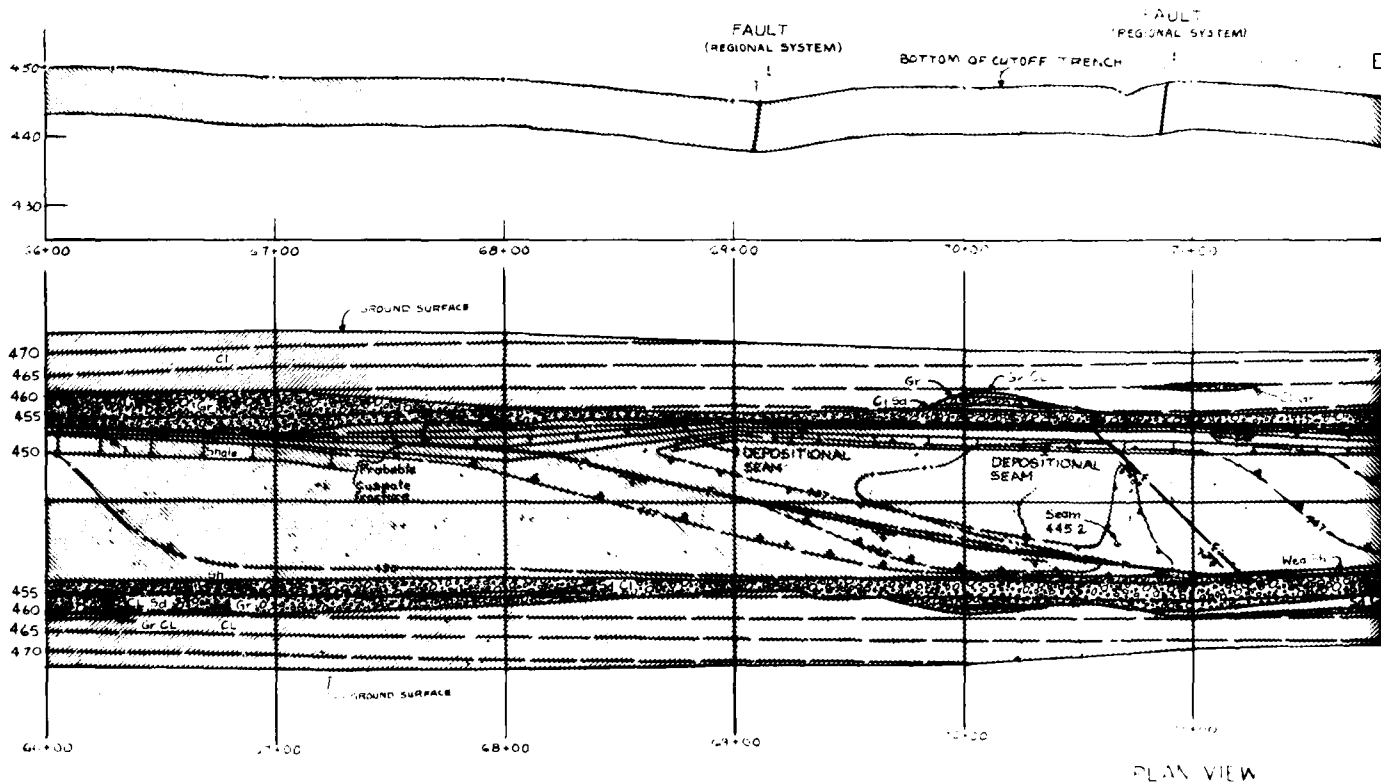
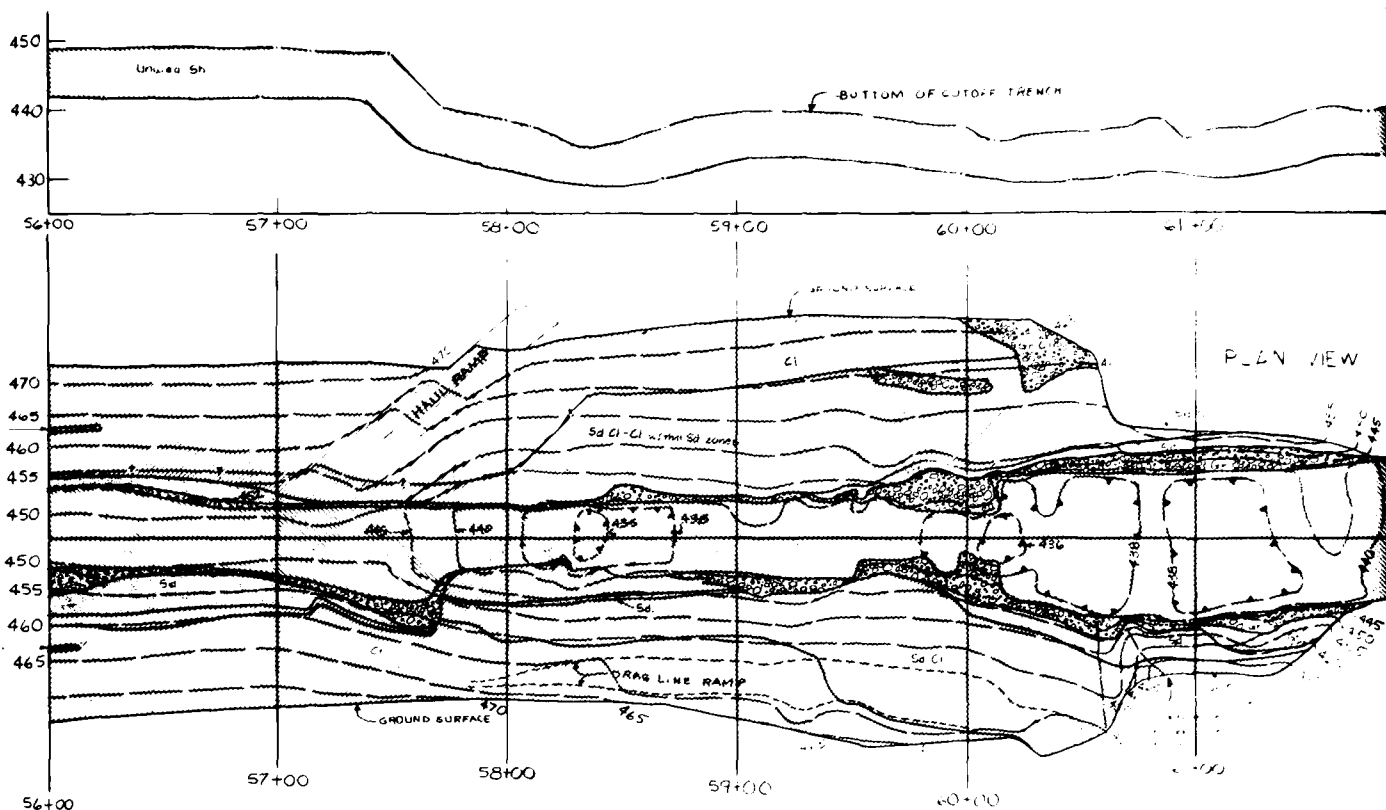
GRANGER LAKE
SAN GABRIEL RIVER, TEXAS

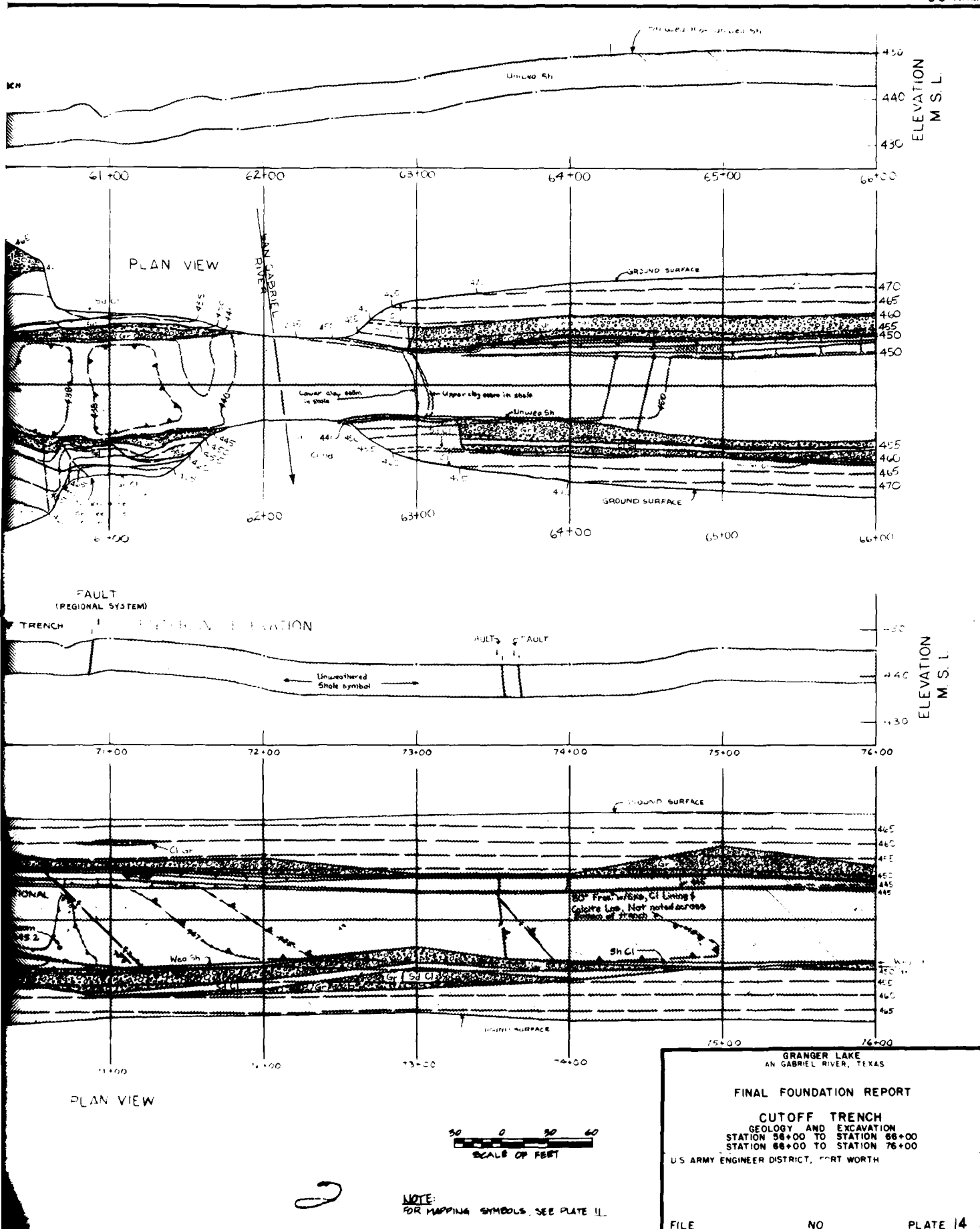
FINAL FOUNDATION REPORT

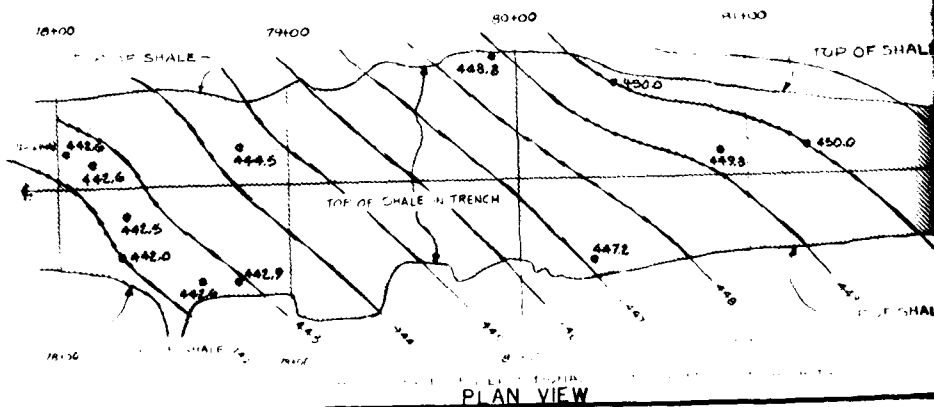
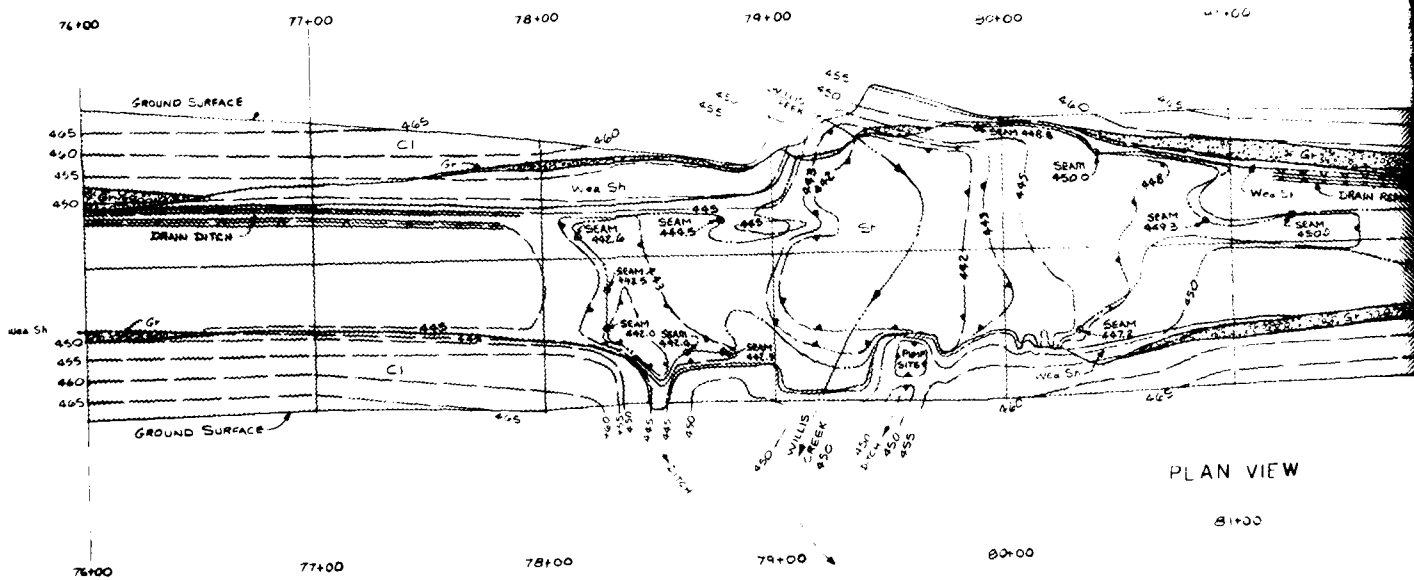
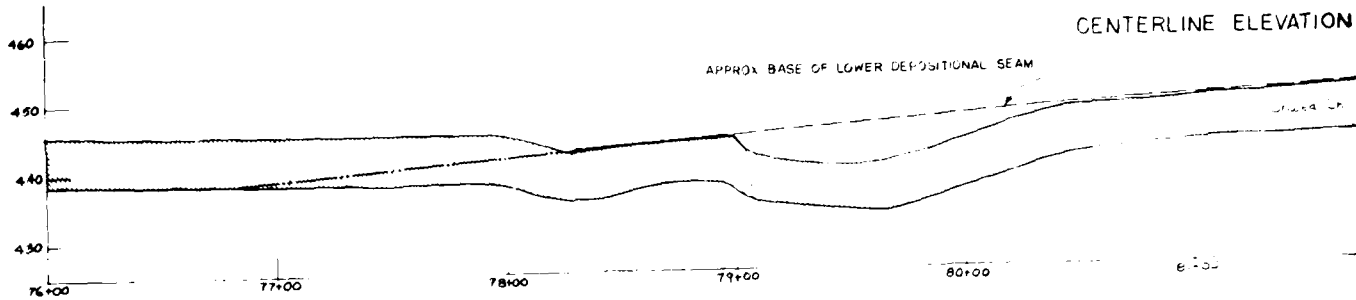
CUTOFF TRENCH
GEOLOGY AND EXCAVATION
STATION 36+00 TO STATION 46+00
STATION 46+00 TO STATION 56+00
U.S. ARMY ENGINEER DISTRICT, FORT WORTH

FILE NO. PLATE 13

TO ACCOMPANY FINAL FOUNDATION REPORT







CENTERLINE ELEVATION

BOTTOM OF CUTOFF TRENCH

A number of stained joints are
exist between Sta. 85+00 and
Sta. 86+00. Shown Symbolically.

ELEVATION M. S. L.

81+00 82+00 83+00 84+00 85+00 86+00

81+00 82+00 83+00 84+00 85+00 86+00

PLAN VIEW

81+00 82+00 83+00 84+00 85+00 86+00

85+00 86+00

81+00 82+00

TOP OF SHALE

0 20 40 60
SCALE OF FEET

NOTE:
FOR MAPPING SYMBOLS, SEE PLATE II

GRANGER LAKE
SAN GABRIEL RIVER, TEXAS

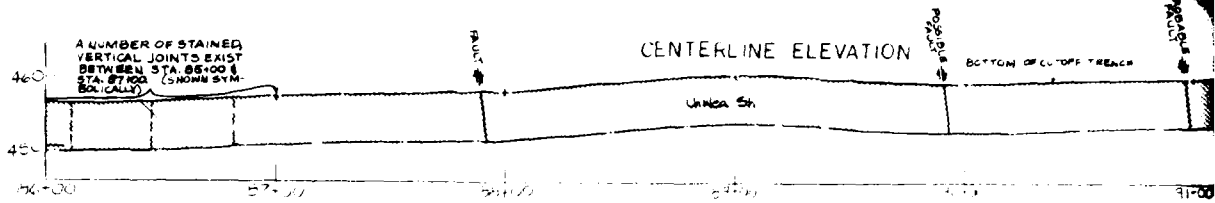
FINAL FOUNDATION REPORT

CUTOFF TRENCH
GEOLOGY AND EXCAVATION
STATION 76+00 TO STATION 86+00

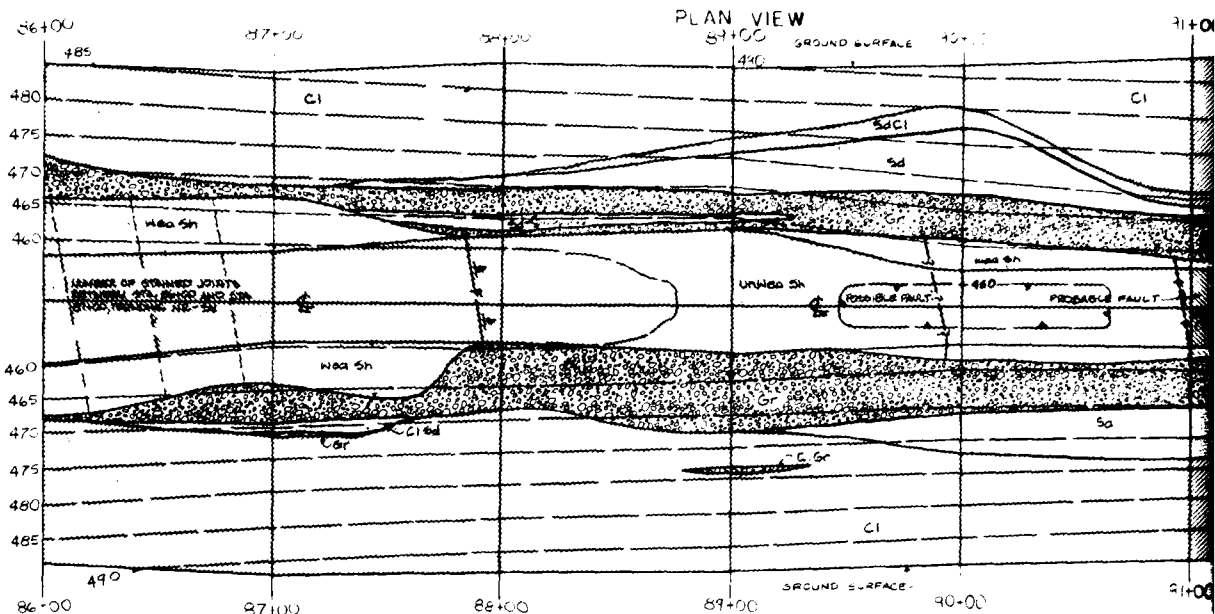
U.S. ARMY ENGINEER DISTRICT, FORT WORTH

FILE NO. PLATE 15
TO ACCOMPANY FINAL FOUNDATION REPORT

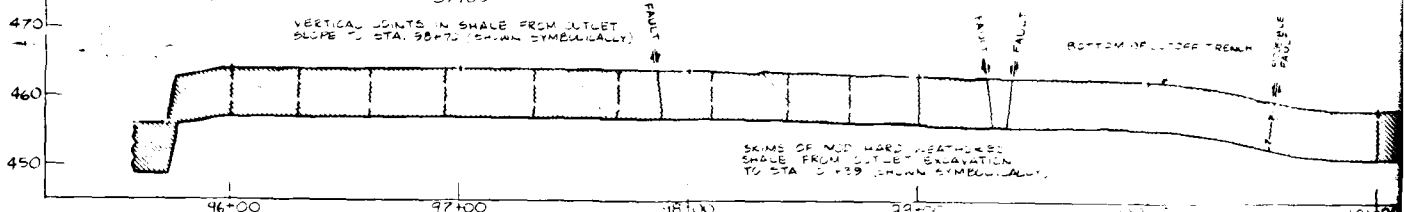
G



F

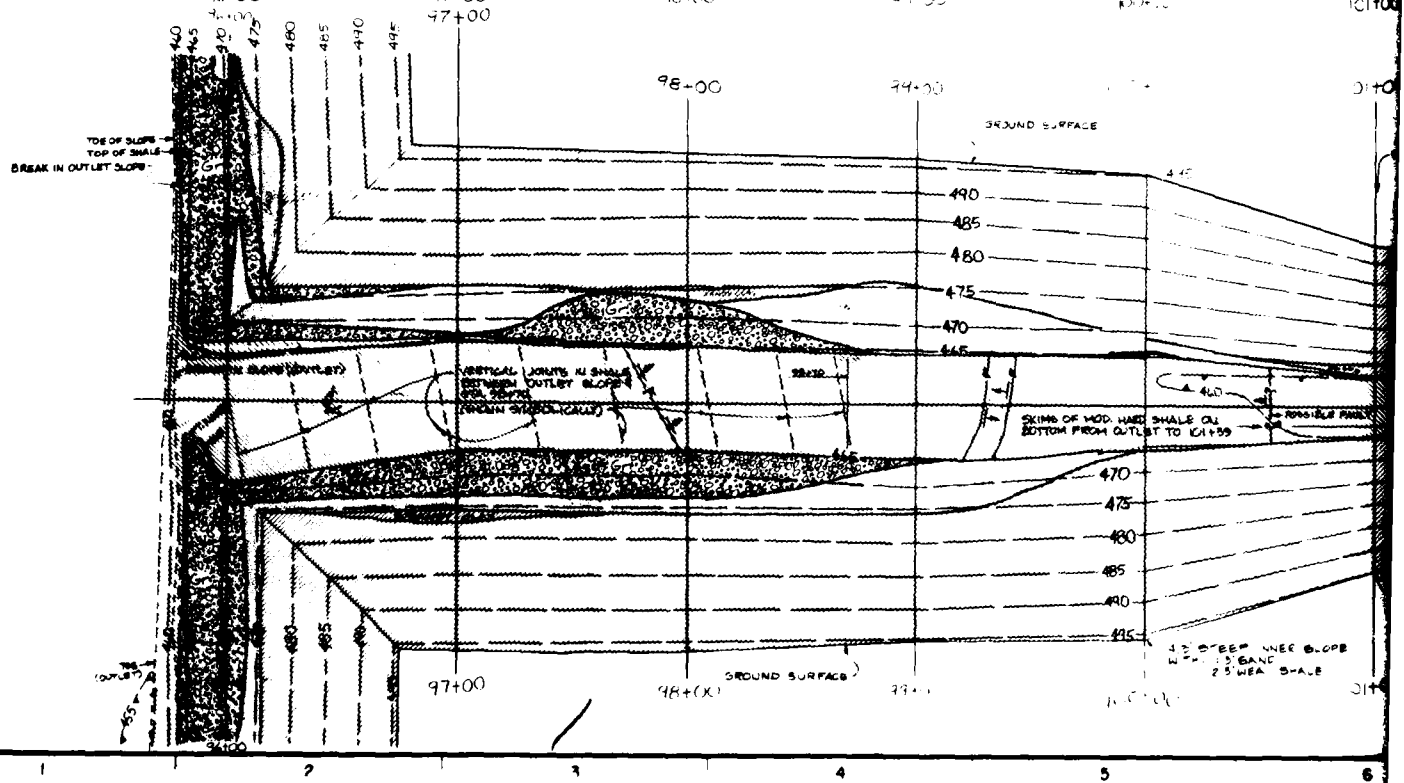


E



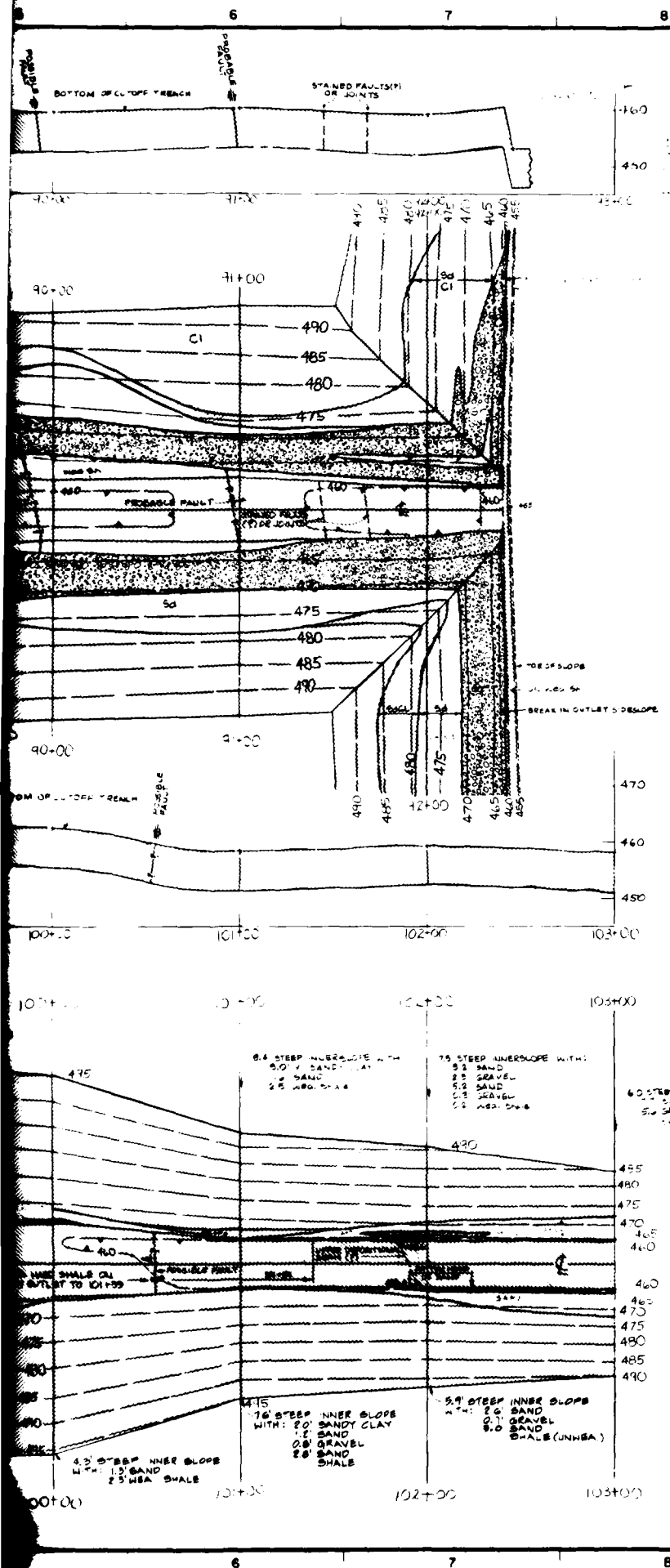
D

C



B

A



NOTE:
FOR MAPPING SYMBOLS SEE PLATE 11.

0 20 40 60
SCALE OF FEET

GRANGER LAKE
SAN GABRIEL RIVER, TEXAS

FINAL FOUNDATION REPORT

CUTOFF TRENCH

GEOLOGY AND EXCAVATION
STATION 88+00 TO STATION 92+44
STATION 95+72 TO STATION 103+00

U.S. ARMY ENGINEER DISTRICT, FORT WORTH

FILE

NO

PLATE 16

TO ACCOMPANY FINAL FOUNDATION REPORT

G

F

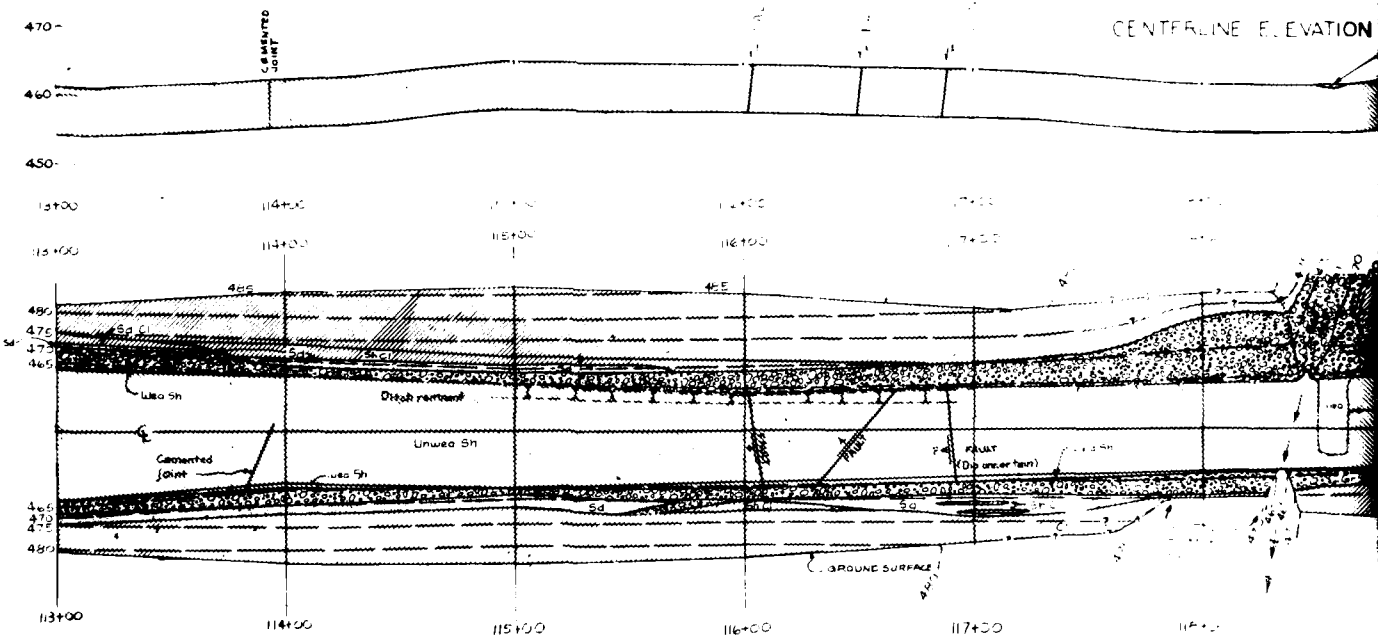
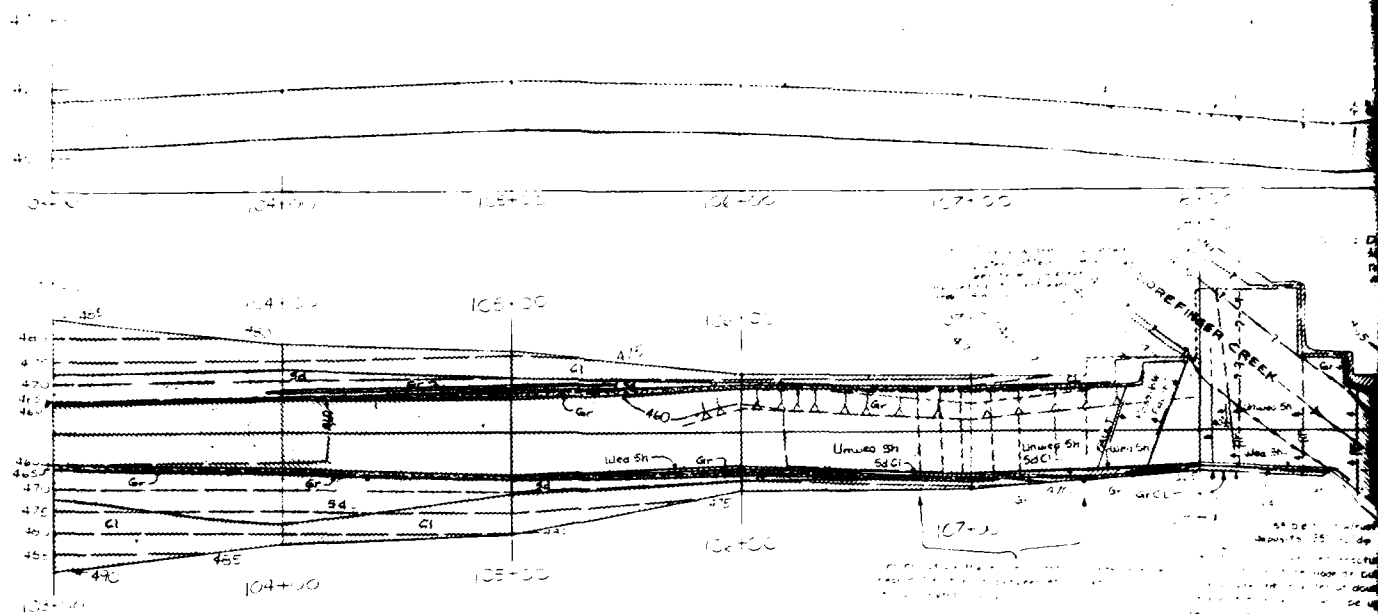
E

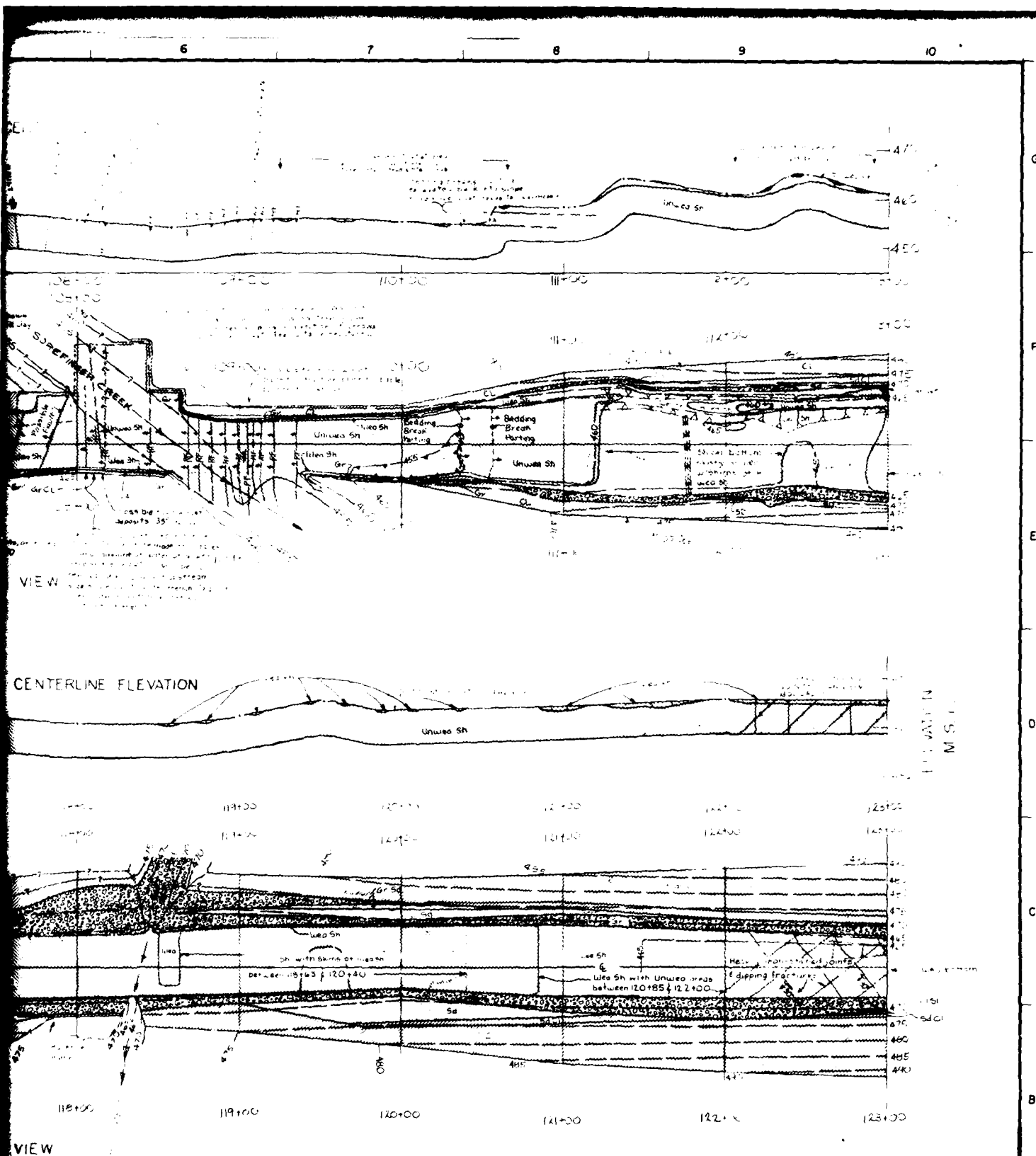
D

C

B

A





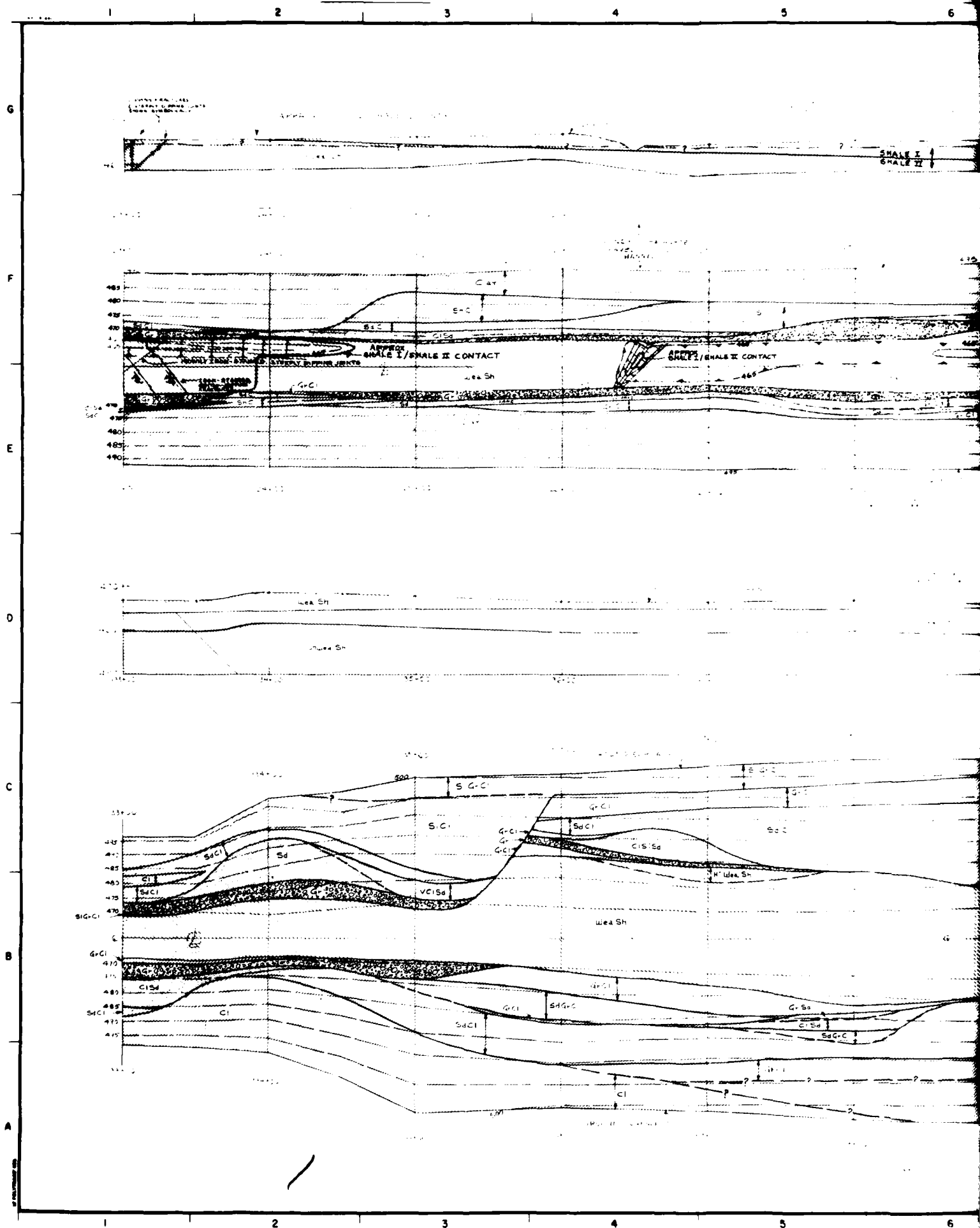
GRANGER LAKE
SAN GABRIEL RIVER, TEXAS

FINAL FOUNDATION REPORT

CUTOFF TRENCH
GEOLOGY AND EXCAVATION
STATION 103+00 TO STATION 113+00
STATION 113+00 TO STATION 123+00
U.S. ARMY ENGINEER DISTRICT, FORT WORTH

FILE NO PLATE 17

TO ACCOMPANY FINAL FOUNDATION REPORT



SHALE I
SHALE II

CLAY

CLAY

SdC

G-CI

SdCI

SdC

G-CI

G-CI

Unlwa Sh

G-CI

SdC

SdC

G-CI

SdC

SdC

SdC

SdC

SdC

SdC

SdC

SdC

NOTE:

FOR MAPPING

SEE PLATE II

30 0 10 60
SCALE OF FEET

GRANGER LAKE

SAN GABRIEL RIVER, TEXAS

FINAL FOUNDATION REPORT

CUTOFF TRENCH

GEOLOGY AND EXCAVATION

STATION 123+00 TO STATION 133+00

STATION 133+00 TO STATION 141+00

U.S. ARMY ENGINEER DISTRICT, FORT WORTH

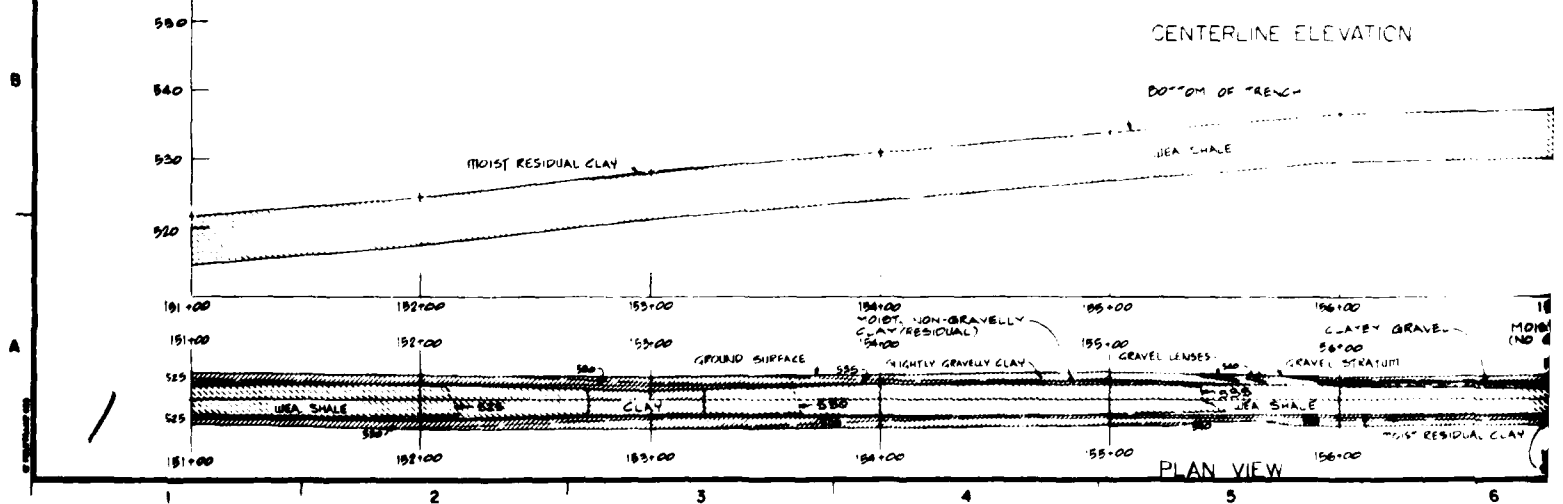
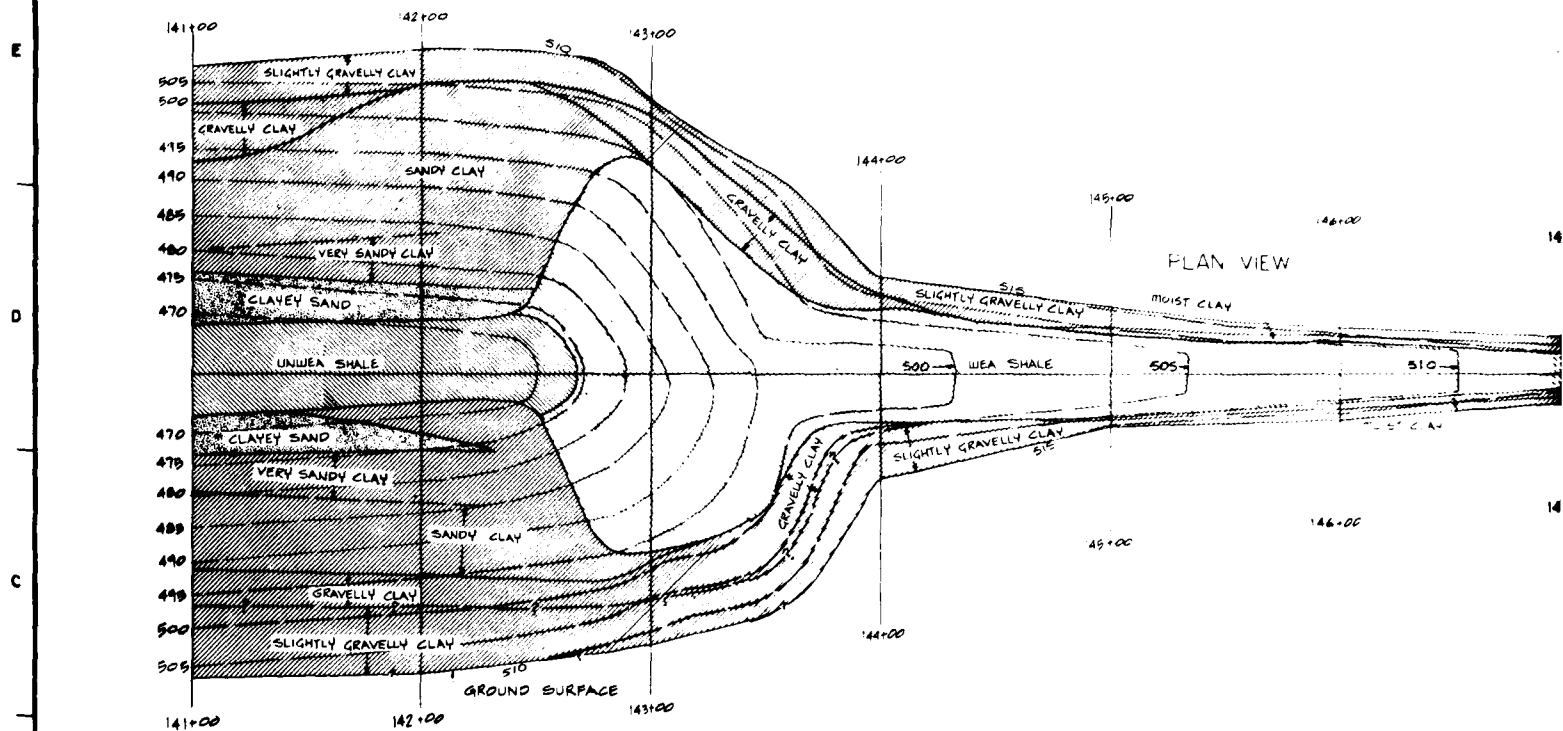
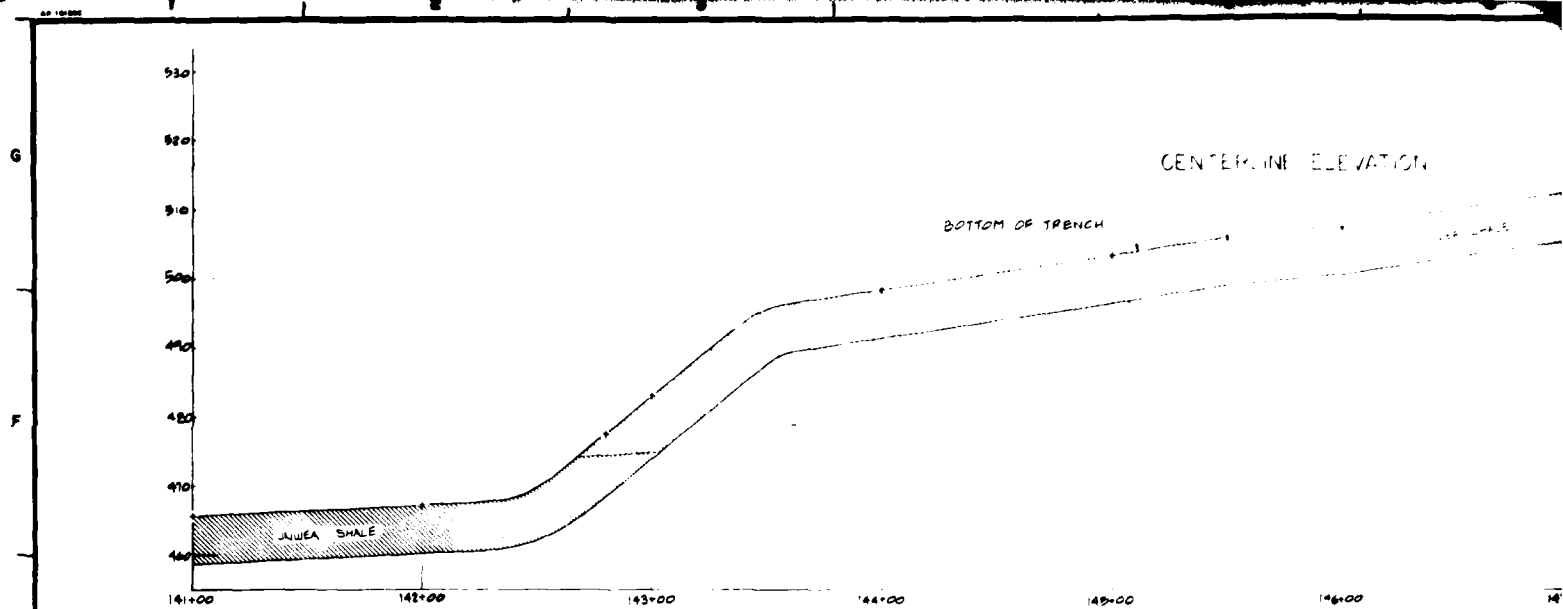
FILE

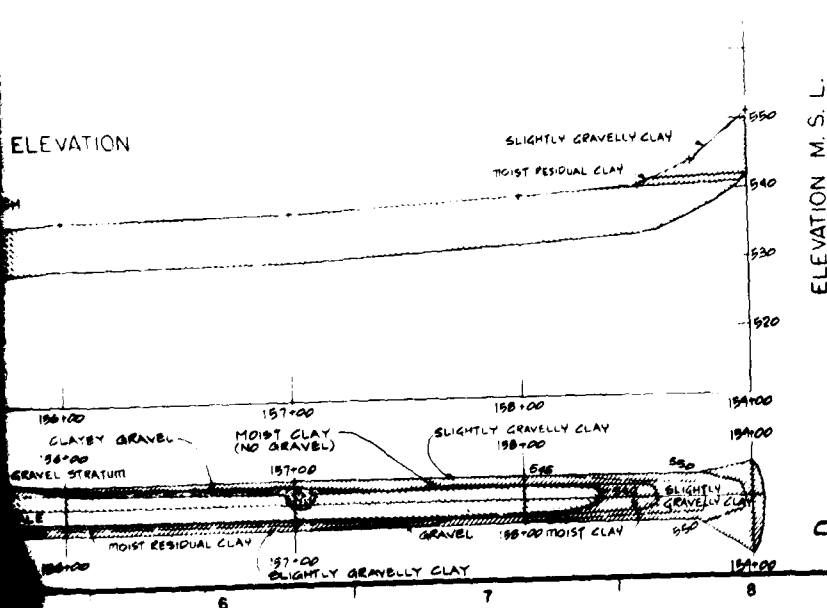
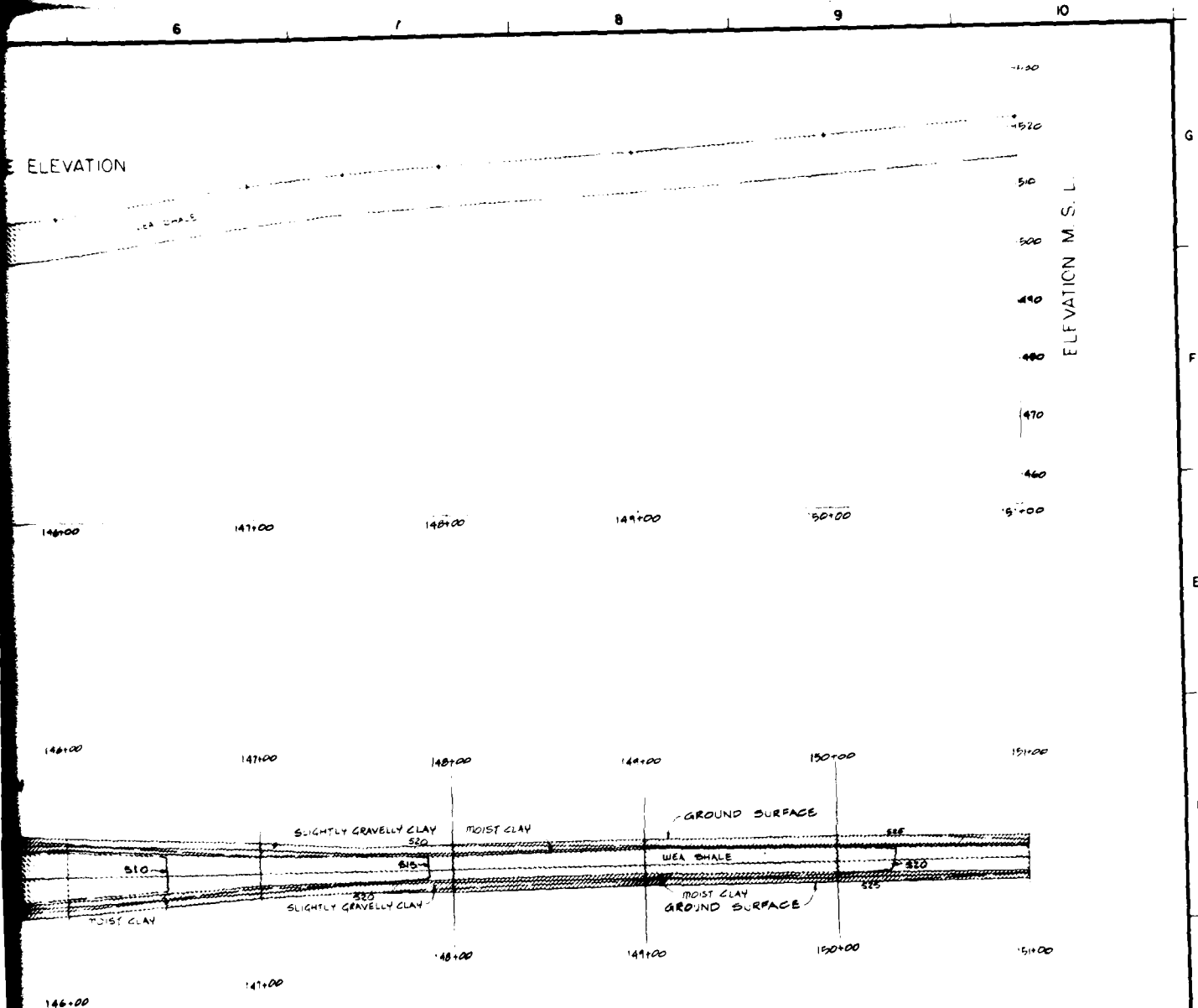
NO

PLATE 10

TO ACCOMPANY FINAL FOUNDATION REPORT

2

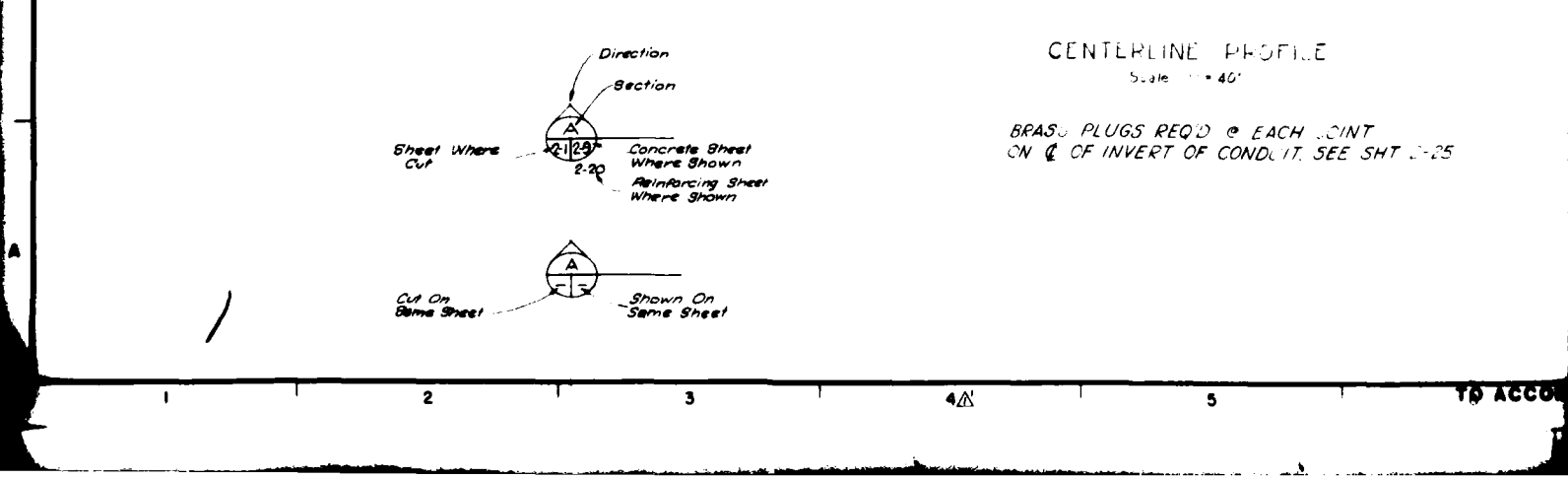
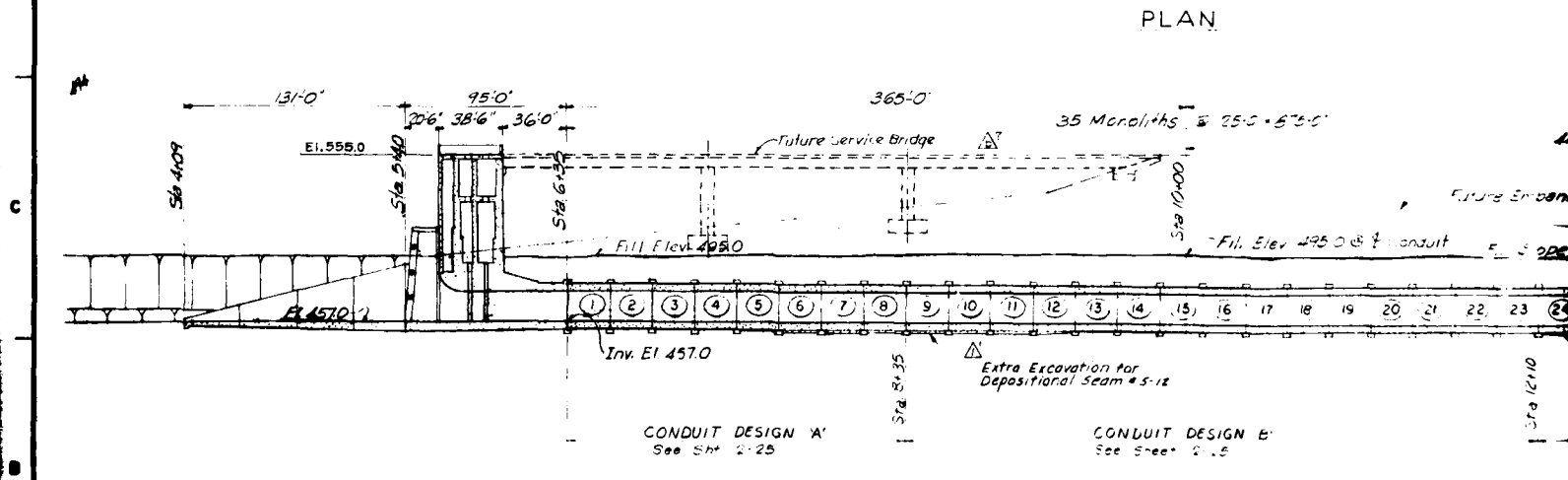
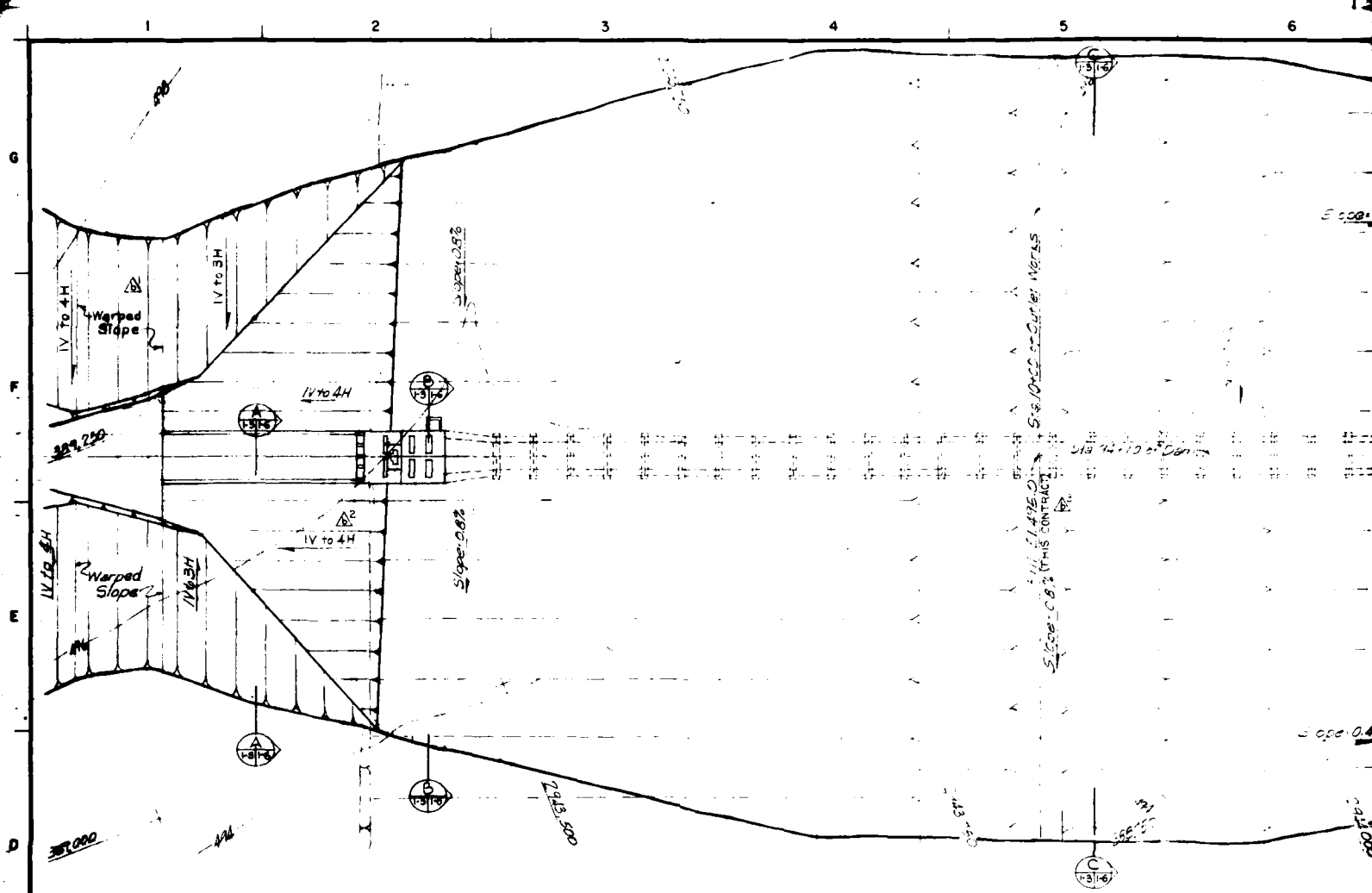




NOTE:
FOR MAPPING SYMBOLS, SEE PLATE II.



BRANGER LAKE SAN GABRIEL RIVER, TEXAS	
FINAL FOUNDATION REPORT	
CUTOFF AND INSPECTION TRENCHES	
GEOLOGY AND EXCAVATION STATION 141+00 TO STATION 151+00 STATION 151+00 TO STATION 159+00	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH	
FILE	NO. PLATE 19
TO ACCOMPANY FINAL FOUNDATION REPORT	



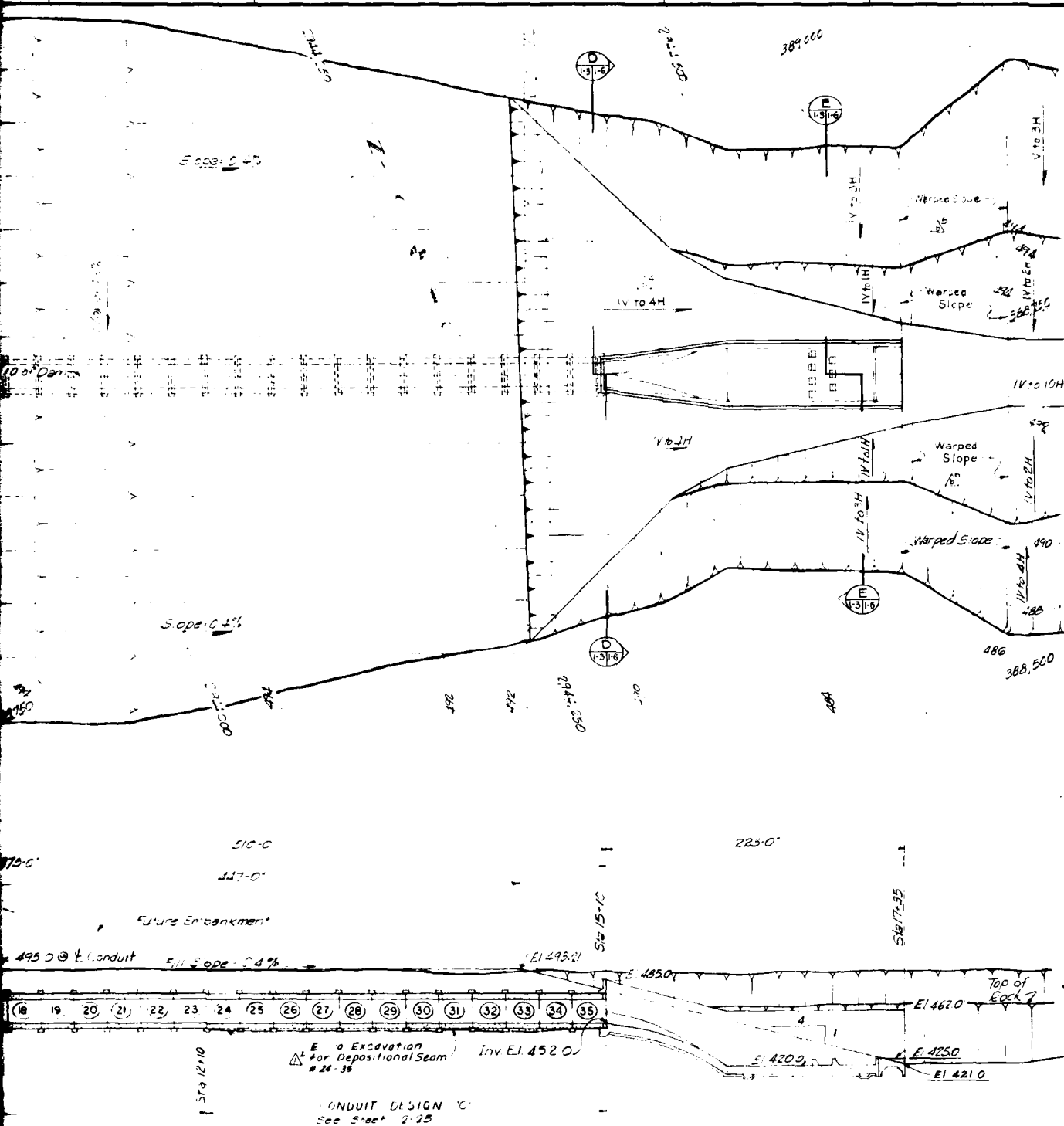
6

7

8

9

10



FILE

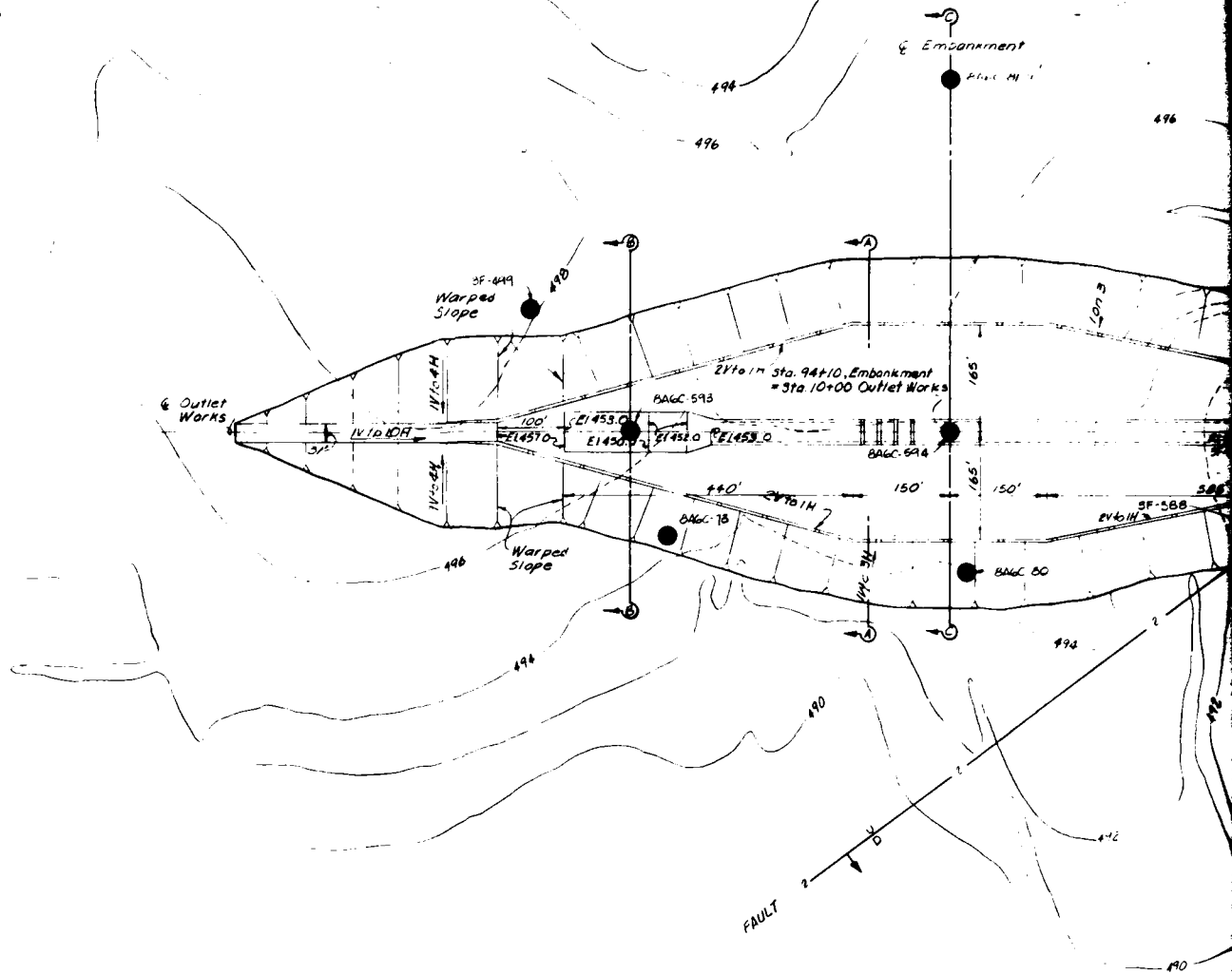
SH JOINT
VT. SEE SHT 2-25

DRAWING OF WORK AS BUILT

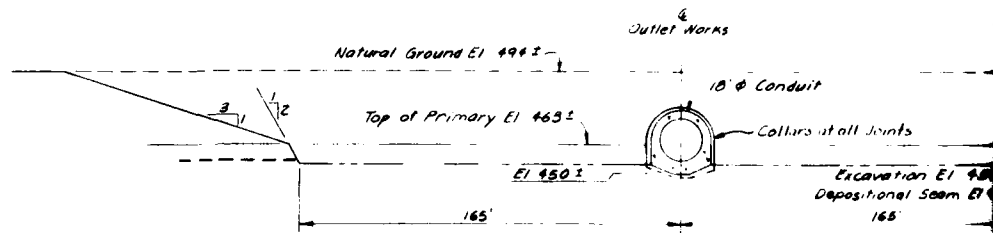
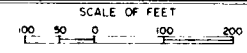
AS-BLT. 15 DEC. 77, REVISED AS-BUILT	
AM 0002 NOV 73 Revised Plan & Center Line Profile	
DESIGNATION OF RECORD	
FRESE, NICHOLS and ENDRESS CONSULTING ENGINEERS FORT WORTH, TEXAS	
U. S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS	
DESIGNED BY: GOF	
DRAWN BY: L.R.	
CHECKED BY: GMR	
SUBMITTED BY: [Signature]	
INVT NO. 040000 - 11-8-0001 DATED OCT. 1973	
CONTR. NO. 71-0-1-1	
DRAWING NUMBER 4.1.02	
SHEET NO. 4	



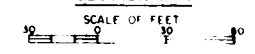
G
F
E
D
C
B
A



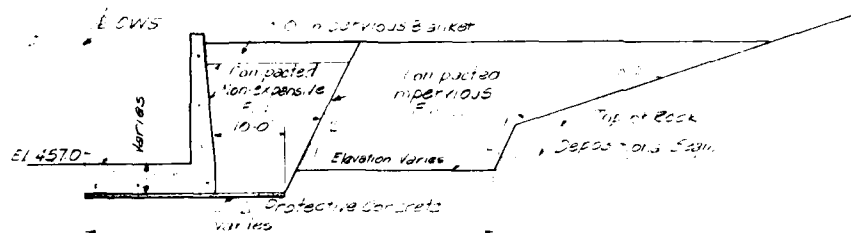
LIMITS OF OUTLET WORKS EXCAVATION



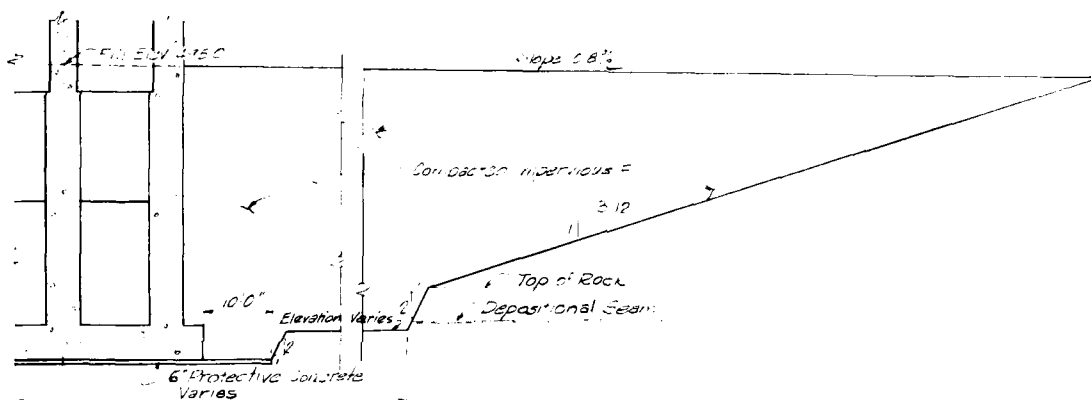
SECTION A-A



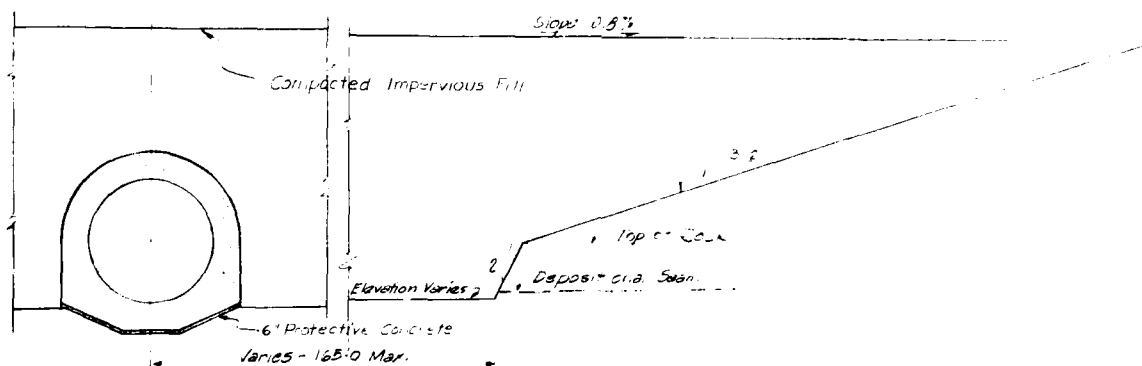
OUTLET WORKS EXCAVATION



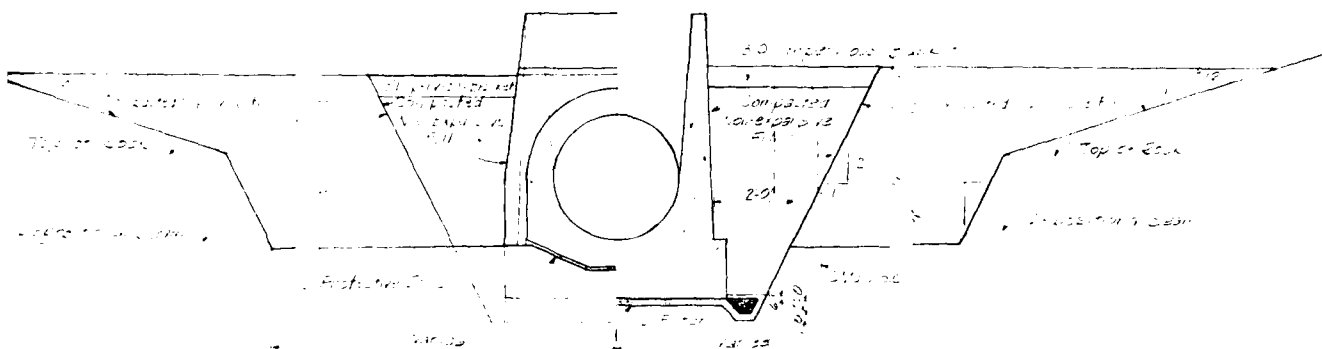
SECTION A
Scale: 1" = 10'



SECTION B
Scale: 1" = 10'

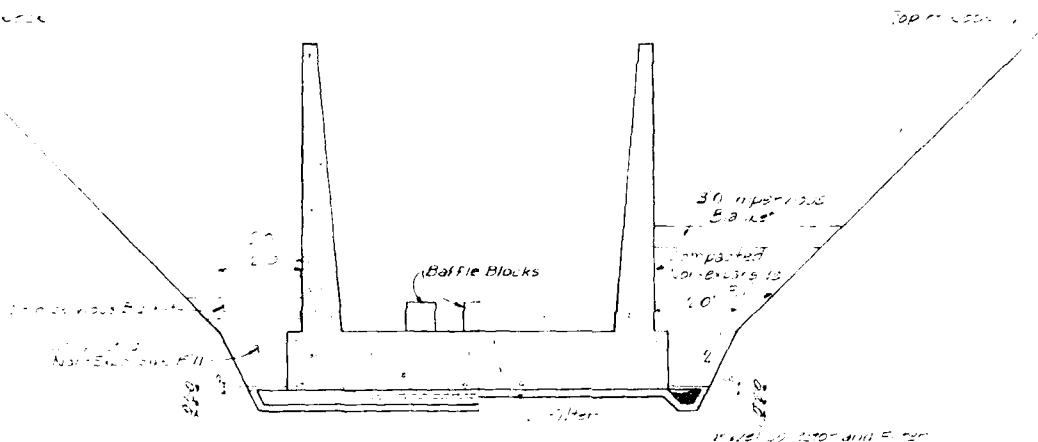


SECTION C
Scale: 1" = 10'



SECTION D
Scale: 1"=10'

D
1-31-6



SECTION E
Scale: 1"=10'

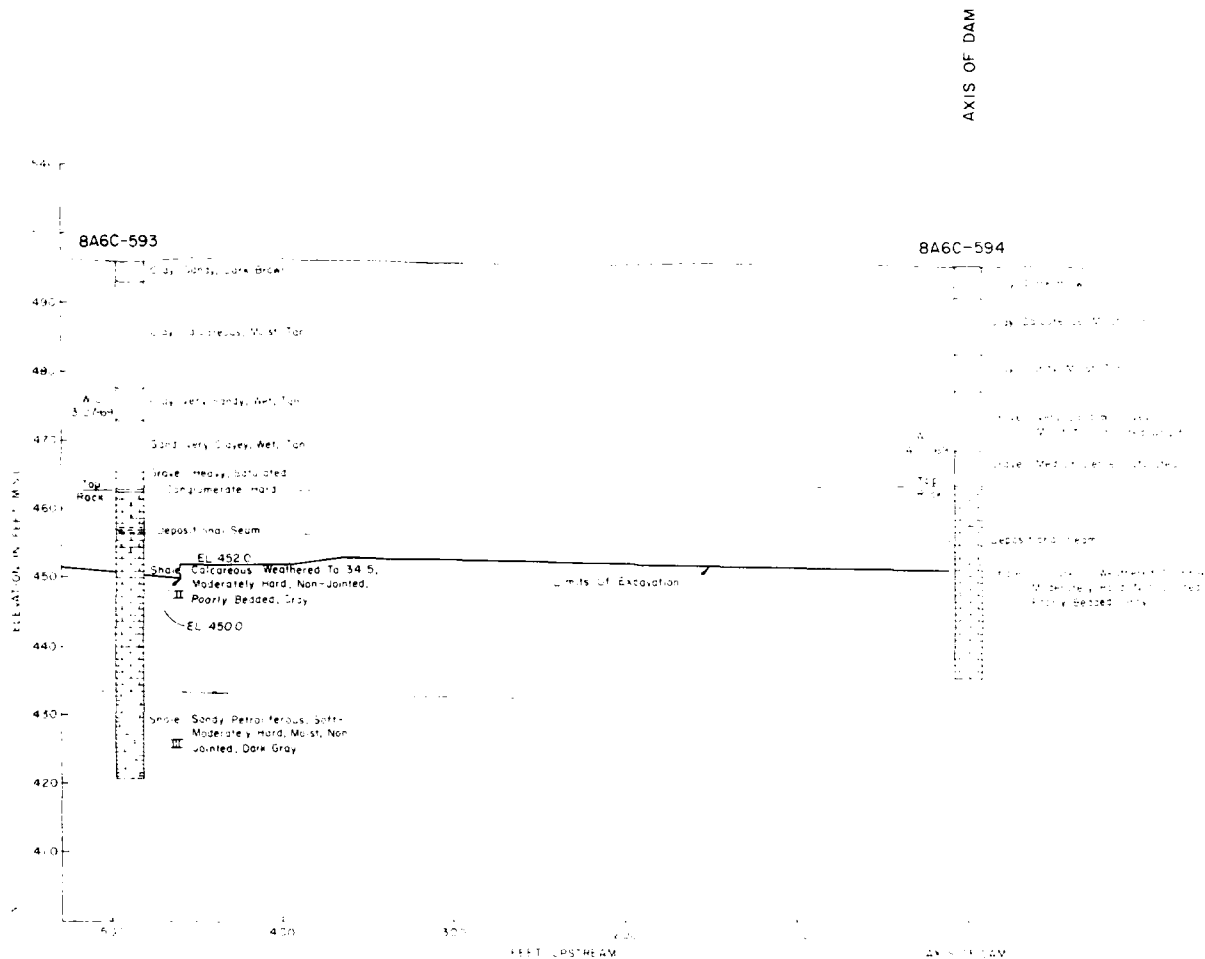
E
1-31-6

Note

Final Excavation For Outlet Works Shall Be Below The Depositional Seam As Determined By The Contracting Officer. A One Foot Protective Shale Layer Above Final Excavation Shall Be Left In Place During Construction Of Outlet Works And Excavated Immediately Prior To Backfilling.

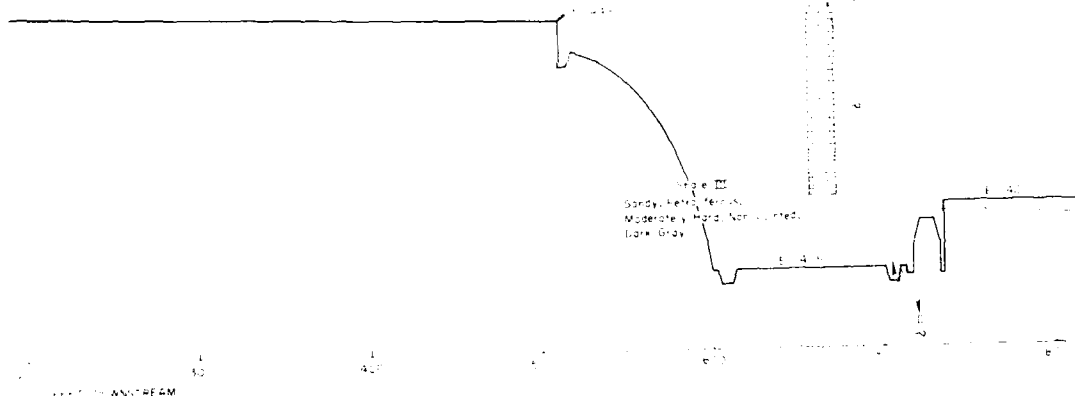
DRAWING BY J. H. HARRIS

DESIGNED BY C. G. F.	BRAZOS RIVER BASIN, TEXAS LANEPORT RESERVOIR SAN GABRIEL RIVER, TEXAS
DRAWN BY J. H.	OUTLET WORKS - PARTIAL EMBANKMENT EXCAVATION SECTIONS
CHECKED BY J. H.	
SUBMITTED BY	INVT. NO. DRAWING NO. 1-31-6 DATED OCT. 1958
ENGINEER	CONTR. NO. 7 DRAWING NUMBER SHEET NO. 8



8460-595

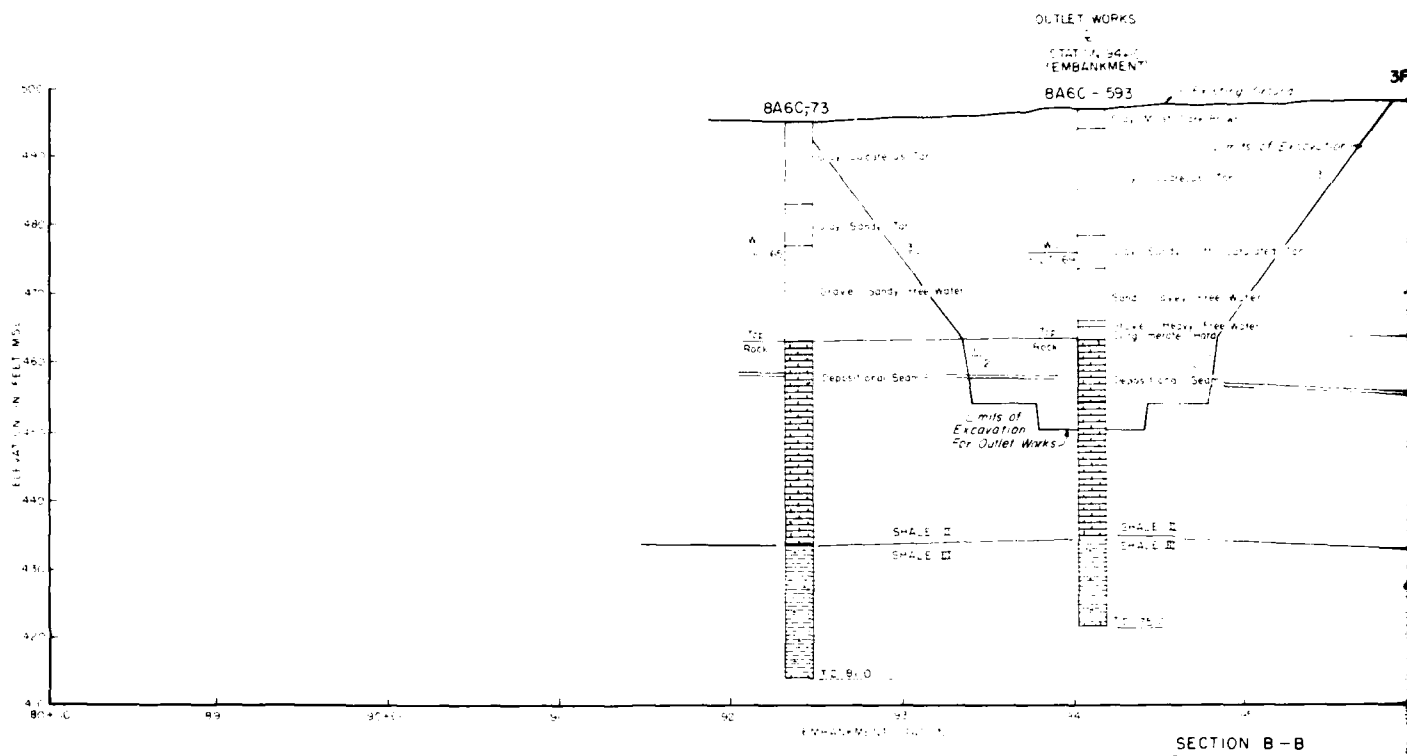
SECTION 7

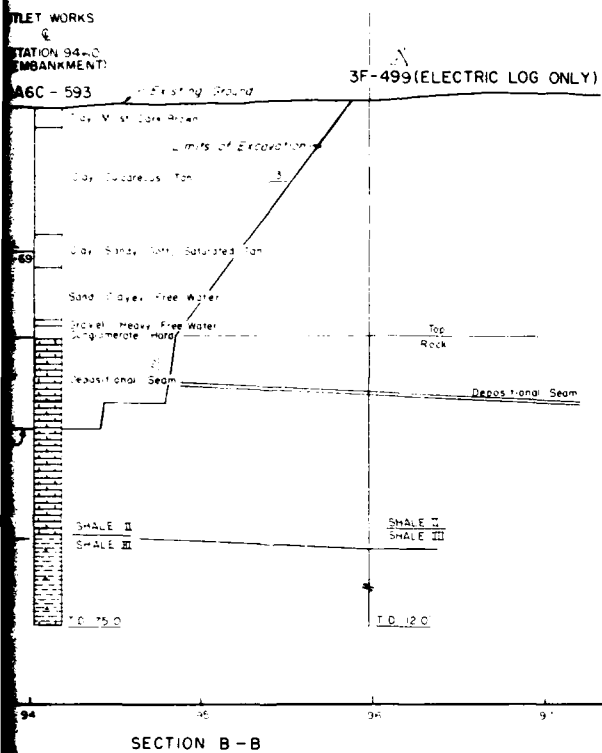


GENERAL NOTES

1. SEE SEQUENCE 7 FOR LOCATION OF SECTION
2. ABSENCE OF GROUND WATER LEVELS OPPOSITE BORING LOGS DOES NOT NECESSARILY MEAN THAT GROUND WATER WILL NOT BE ENCOUNTERED AT THE LOCATIONS OR WITHIN THE VERTICAL REACHES OF THE BORINGS
3. WATER SHOULD BE ANTICIPATED IN THE SANDY AND GRAVELLY MATERIALS OVERLYING SHALES
4. WHILE THE BORINGS AND GEOLOGIC STRUCTURAL INTERPRETATIONS ARE REPRESENTATIVE OF SUBSURFACE CONDITIONS FOR THE VERTICAL AND HORIZONTAL REACHES AS SHOWN, MINOR VARIATIONS IN CHARACTERISTICS OF MATERIALS AND LATERAL LOCATIONS OF FAULTS MAY BE ENCOUNTERED

DESIGNED BY		DRAWN BY		CHECKED BY		APPROVED BY	
AM 0002		19 NOV 73		REV NOTE 1 AND ADDED LEGEND		REVISIONS BY	
<p align="center">U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS</p> <p align="center">BRAZOS RIVER BASIN, TEXAS LANEPORT RESERVOIR SAN GABRIEL RIVER, TEXAS</p> <p align="center">OUTLET WORKS</p> <p align="center">GEOLOGIC PROFILE ON CENTERLINE</p>							
NO. 00000000		DATED OCT 1973		CONTR NO.		SEQUENCE NO.	
DRAWING NUMBER		SHEET NO.		OF		9	

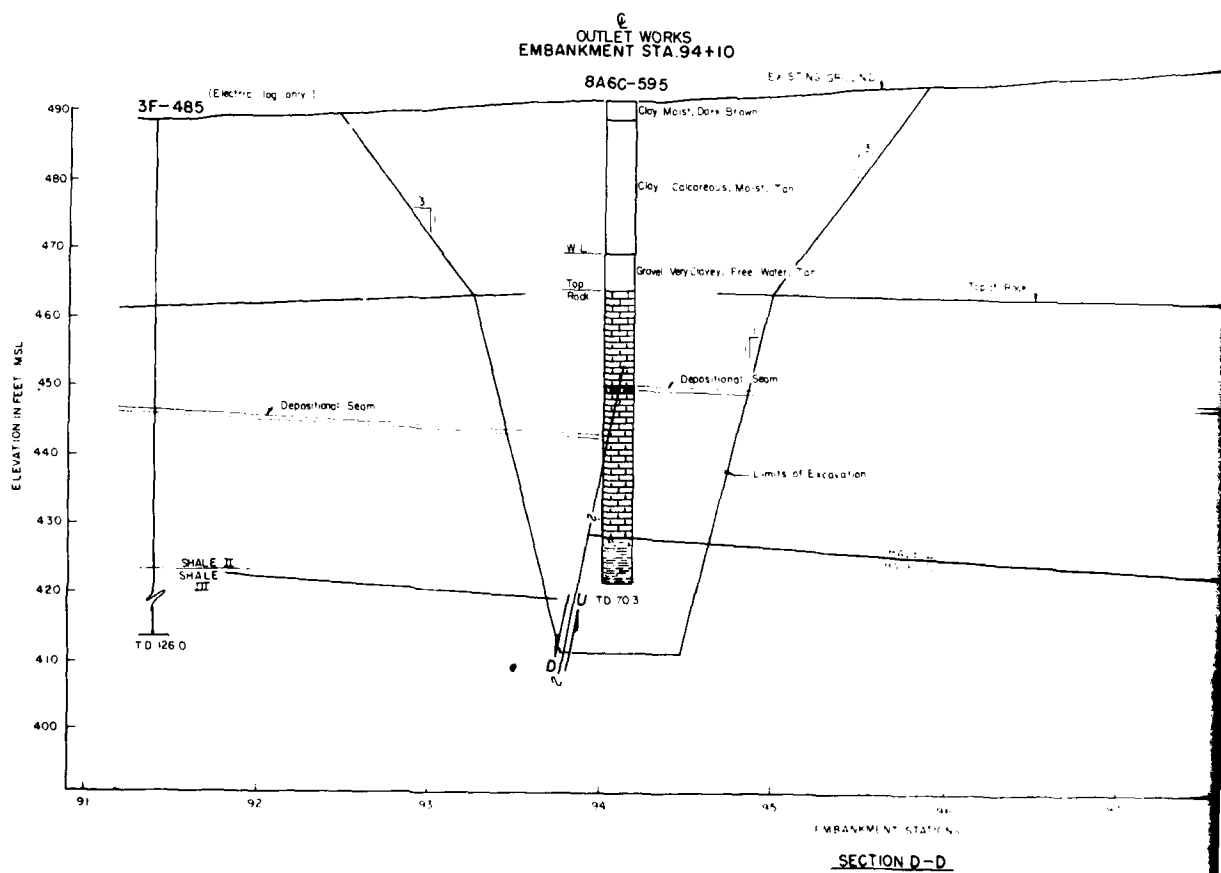
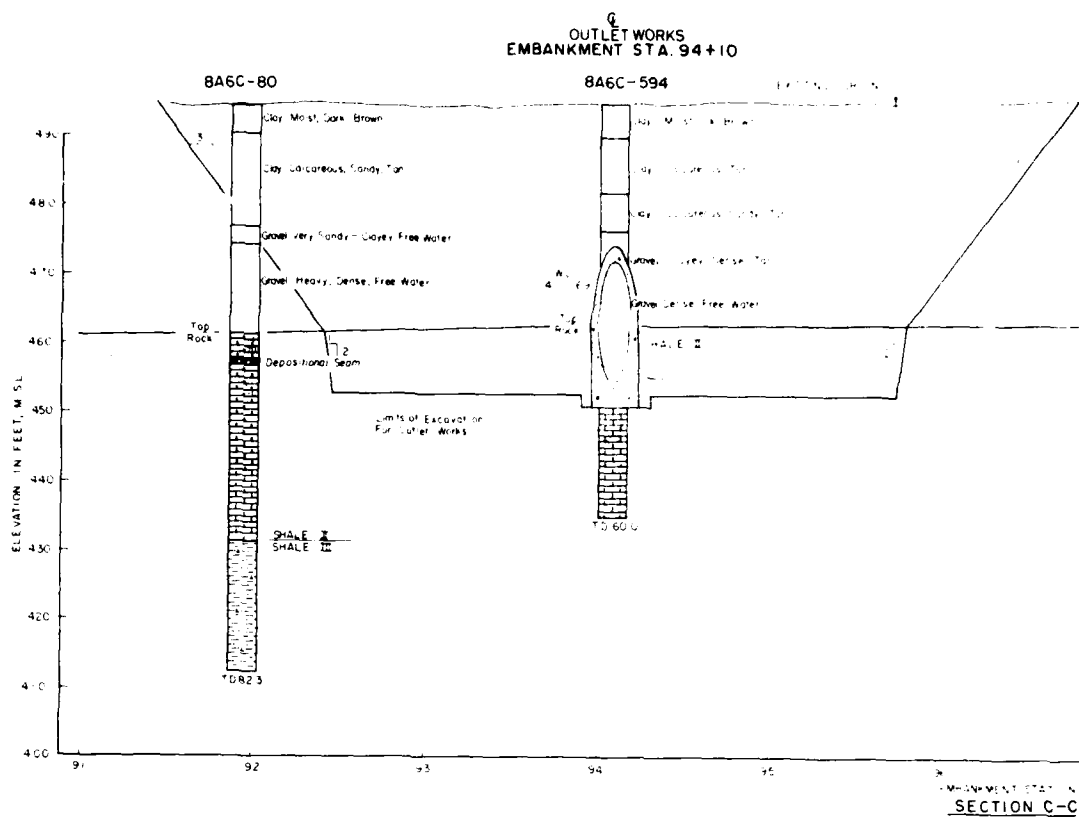


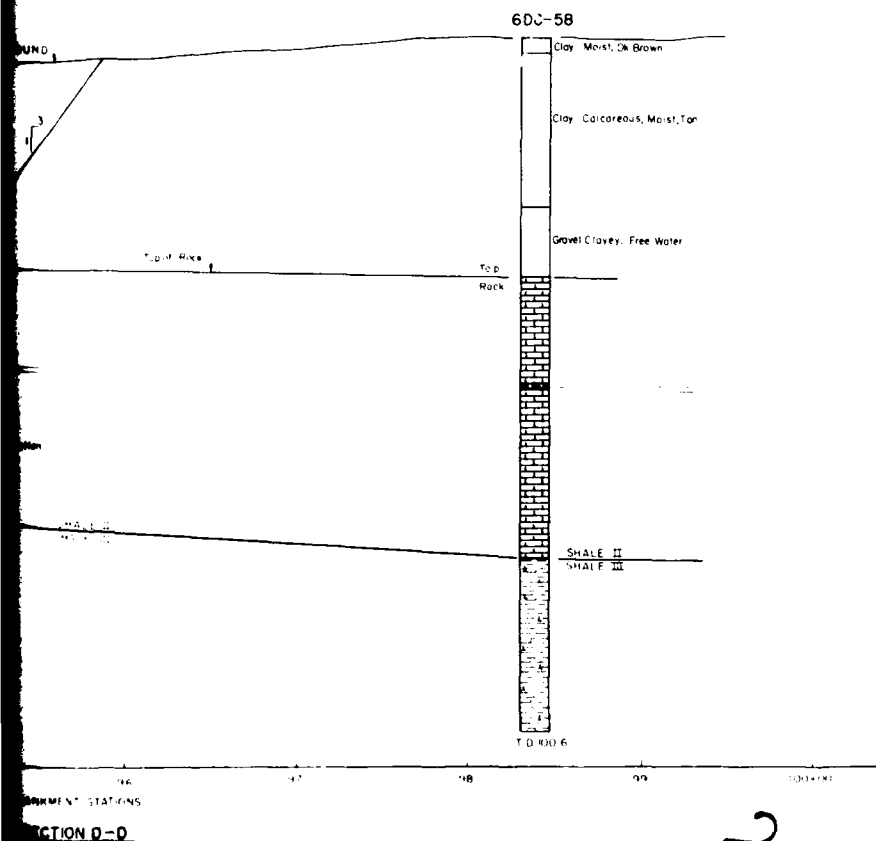
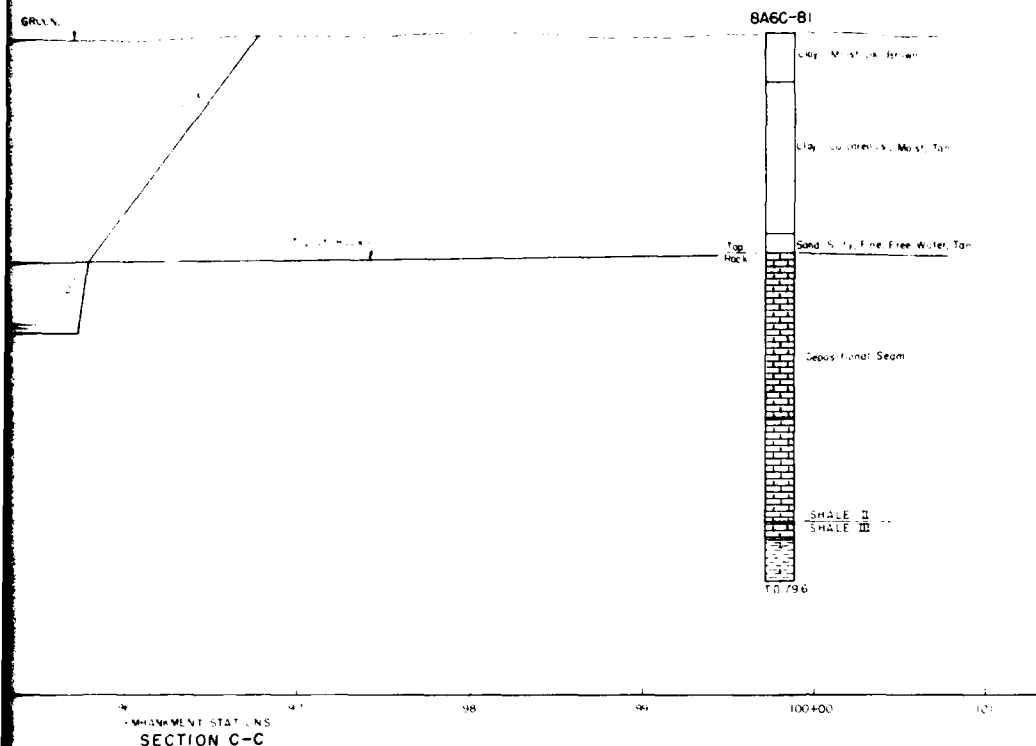


△ FOR GENERAL NOTES AND LEGEND SEE SEQ 9

△ DRAWING OF MUDY AT JILLS

AMECOR 10/10/78 REV TO REFLECT W.A. CHANGES DATE 10/10/78			
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
BRAZOS RIVER BASIN, TEXAS LANEPART RESERVOIR SAN GABRIEL RIVER, TEXAS			
OUTLET WORKS-PARTIAL EMBANKMENT			
GEOLOGIC PROFILES			
THRU CUT AND COVER CONDUIT			
SECTION B-B			
INV NO. DACW46-78-0-0001 DATED OCT. 1978		SEQUENCE NO.	
CONTR NO.		SHEET NO.	
DRAWING NUMBER		OF 10	

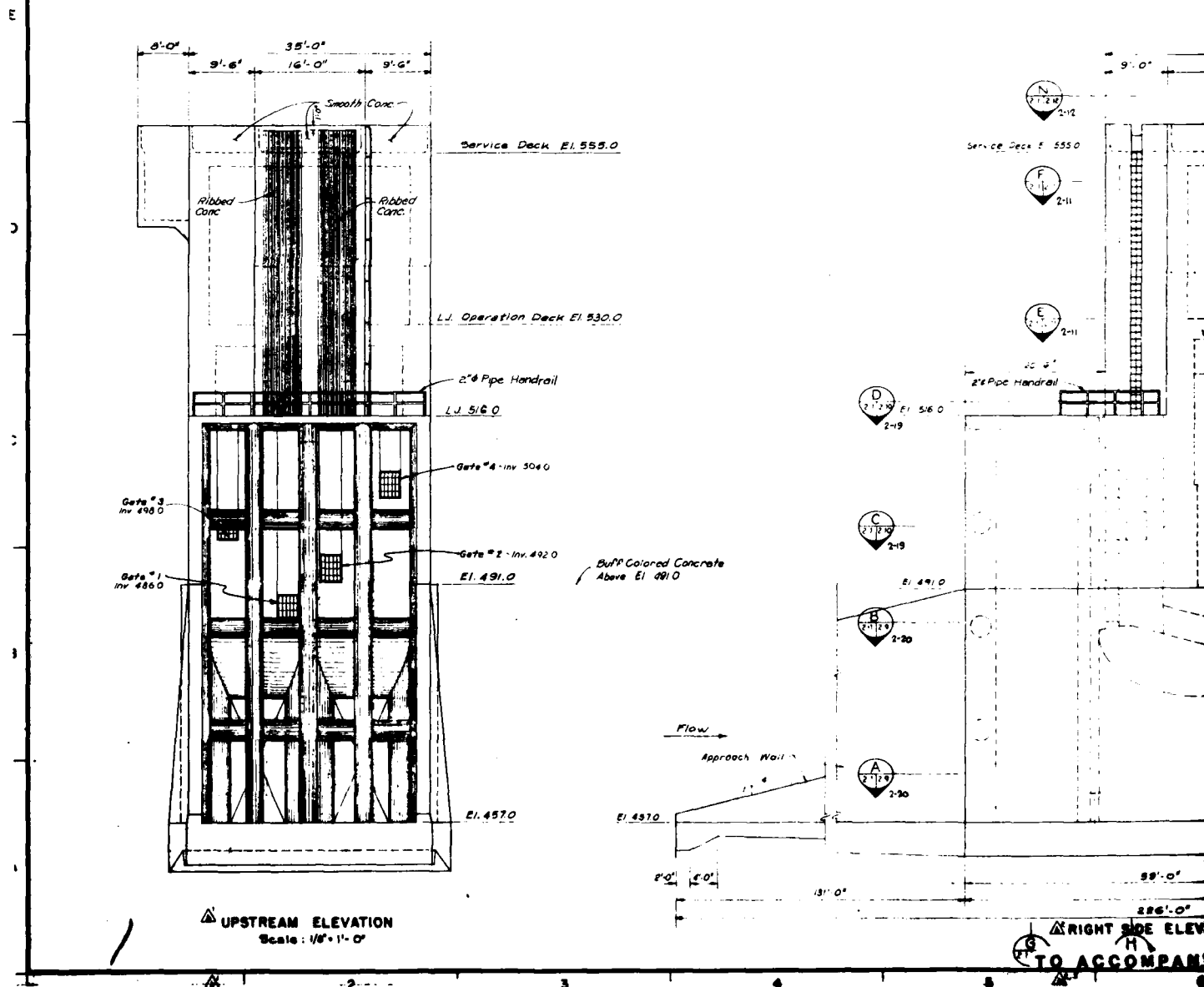
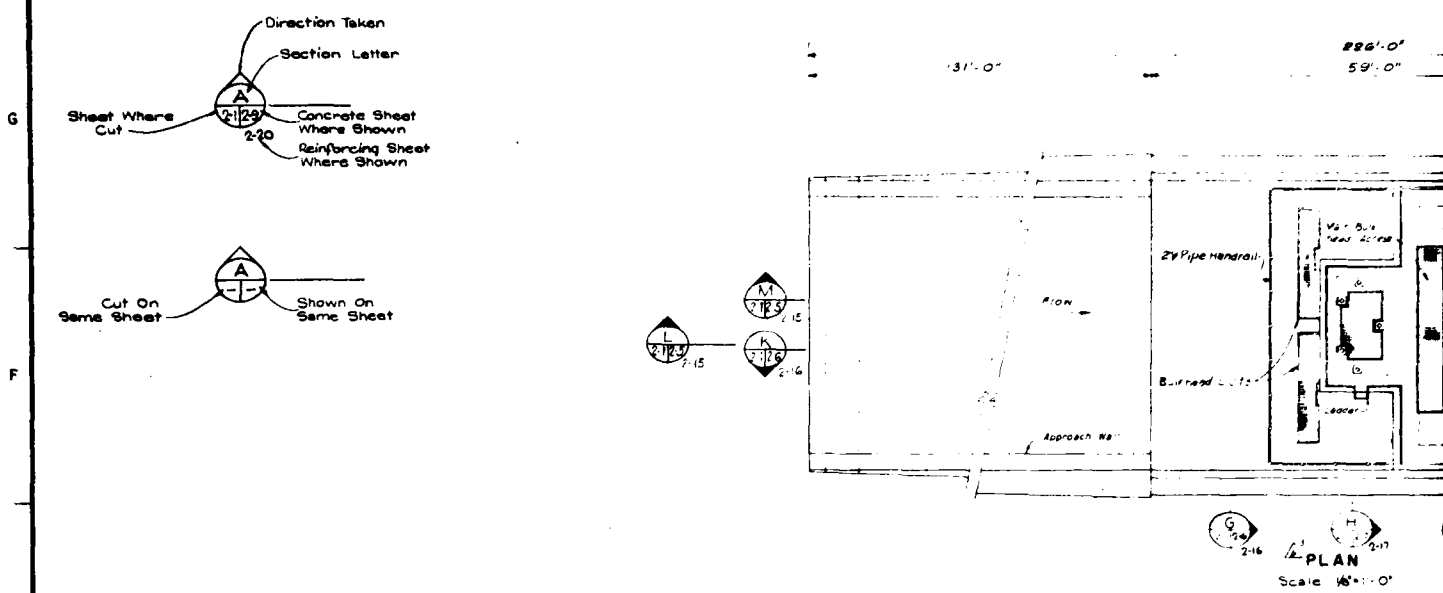




FOR GENERAL NOTES AND LEGEND SEE SEQ '9

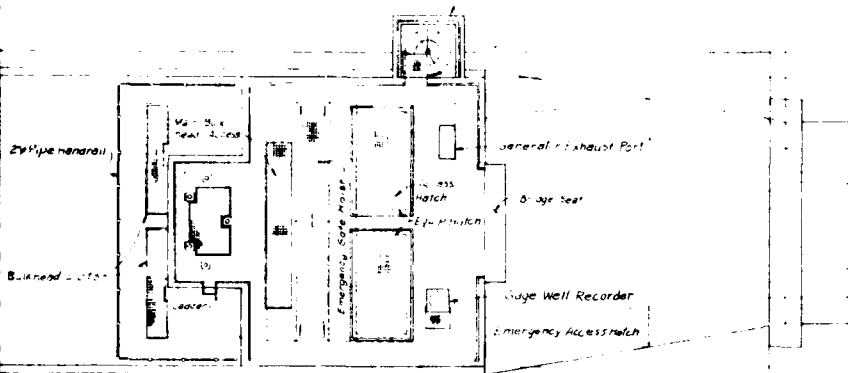
DRAWING OF A. S. GULF

REV. TO REFLECT W.I. CHANGES	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH	CORPS OF ENGINEERS
FORT WORTH, TEXAS	
DESIGNED BY	BRAZOS RIVER BASIN, TEXAS
DRAWN BY	LANEPORT RESERVOIR
CHECKED BY	SAN GABRIEL RIVER, TEXAS
OUTLET WORKS-PARTIAL EMBANKMENT	
GEOLOGIC PROFILES	
THRU CUT AND COVER CONDUIT	
SECTIONS C-C & D-D	
NO. 1	DRAWING NO. 8-001
DATE	OCT. 1978
REVISION	1
READING NUMBER	SHEET NO.
21	21



22'-0"
5'-0"

36'-0"



PLAN
Scale 1/8"=1'-0"

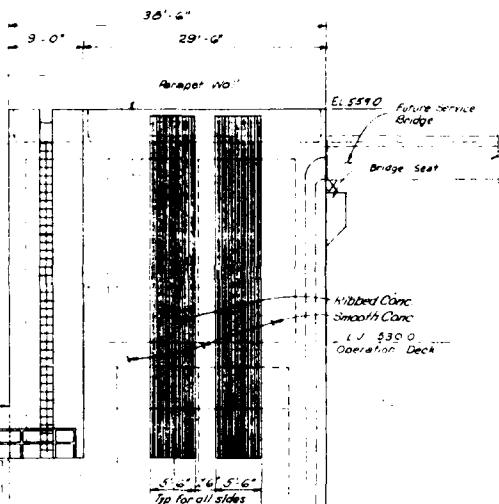
TENSION BAR LAP AND EMBEDMENTS

F _c	F _y	BAR SIZE	LAP LENGTH INCHES		EMBEDMENT LENGTH INCHES	
			TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
3000 PSI	400 KSI	3	12	12	12	12
		4	15	12	12	12
		5	18	13	12	12
		6	23	17	16	18
		7	32	23	20	16
		8	42	30	26	18
		9	53	38	33	21
		10	64	48	42	24
		11	83	60	51	30
		14			70	50

TENSION BAR LAP AND EMBEDMENTS

F _c	F _y	BAR SIZE	LAP LENGTH INCHES		EMBEDMENT LENGTH INCHES	
			TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
4000 PSI	400 KSI	3	12	12	12	12
		4	15	12	12	12
		5	18	13	12	12
		6	22	16	13	12
		7	30	22	19	13
		8	36	26	22	16
		9	46	33	28	20
		10	56	42	36	26
		11	72	51	44	32
		14			60	45

- 1 Top Bars Are Horizontal Reinforcement So Placed That More Than 12 In. Of Concrete Is Cast In The Member Below The Bar.
- 2 Lap Lengths shown are in accordance with ACI 318-71 Class "B" Service.
- 3 For General Reinforcing Notes, See Sheet 2-2.



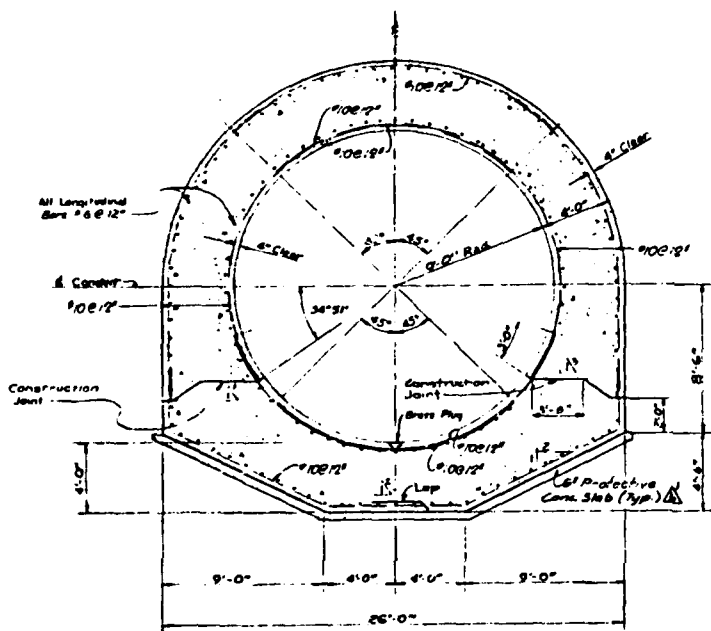
GENERAL NOTES:

- 1-All Exposed Concrete Surfaces Shall Have CLASS "B" Finish Except As Otherwise Noted.
- 2-CLASS "B" Finish Shall Extend 1'-0" Below FINISH GRADE OR TOP OF FUTURE BACKFILL EXCEPT WHERE FINISH GRADE IS ROCK IN WHICH CASE THE FINISH SHALL EXTEND ONLY TO ROCK.
- 3-All Concrete Surfaces 1'-0" Below Finish Grade Or Backfill And Formed Contraction Joints Shall Be Class "D" Finish.
- 4-Chamfer All Exposed Concrete Edges 1/4" Unless Otherwise Noted Do Not Chamfer Concret Jts. For Second Stage Concrete.
- 5-Reinforcing Shall Not Continue Thru Contraction Jt.
- 6-Contraction Joints Shall Have No Special Joint Cleaning And No Joint Material Other Than Two Coats Of Bituminous Paint.
- 7-All Interior Conduit Surfaces Including Conduit In Tower Base And Transition Shall Be CLASS "C" Finish.
- 8-Wood Float Finish Shall Be Used On The Unformed Portion Of The Conduit Invert And The Stilling Basin Apron And Floor Slab And Other Horizontal Surfaces.
- 9-High Strength (4000 psi) Concrete Shall Be Used a) In The Conduit From Sta 5125 To Sta 5140; b) Approach Structure From Sta 4109 To Sta 5140; c) Stilling Basin From Sta 5140 To Sta 17+25. All Other Concrete Shall Be 3000 PSI Strength.
- 10-See Sheet 2-3 For Architectural Treatment Of Structure above Elev 516.0.
- 11-Backfill Around Intake Structure Shall Not Be Performed Until After Placing Of The Second Stage Concrete Around Gate, Etc.
- 12-Paint Contact Surfaces Between Aluminum And Concrete, Steel Shapes Or Steel Bolts With Aluminum Impregnated Caulking Compound.
- 13-All Bolts, Washers, And Nuts To Be Galvanized Except As Otherwise Noted.
- 14-See Plans For Protective Coatings.
- 15-Buff Colored Conc Above El 491.0.
- 16-For Handrail Details, See Sheet 2-2.

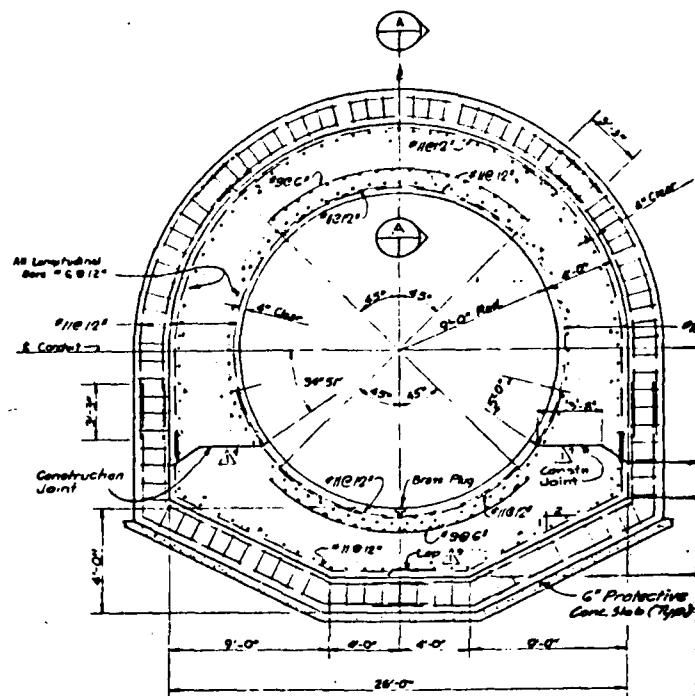
AM 0002		NOV 73		REVISED PLAN, ELEVATIONS AND NOTES	
DESIGNED BY FREEM, NICHOLS AND ENDRESS CONSULTING ENGINEERS FORT WORTH, TEXAS		U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
DRAWN BY JMS		BRAZOS RIVER BASIN, TEXAS LANEPORT RESERVOIR SAN GABRIEL RIVER, TEXAS			
CHECKED BY JMS		OUTLET WORKS-INTAKE STRUCTURE GENERAL ELEVATIONS			
APPROVED BY [Signature]		REV NO CHANGES - NO 0-0001 / DATE 01/07/74			
CONTR NO		DRAWING NUMBER			

RIGHT SIDE ELEVATION

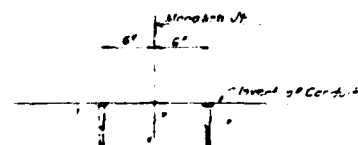
TO ACCOMPANY FINAL FOUNDATION REPORT PLATE 26



MONOLITHS ① thru ②
CONDUIT DESIGN 'A'
SCALE: 1/4" = 1'



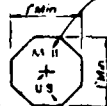
MONOLITHS ③ thru ⑤
CONDUIT DESIGN 'B'
SCALE: 1/4" = 1'



**TYPICAL BRASS PLUG
INSTALLATION**
SCALE: 1/2" = 1'-0"

Cross Mark to be
Surround in and
Secured when
Conduit Complete

Number to Follow Sequence
Shown for Marking
Numbering on Sheet 1/3

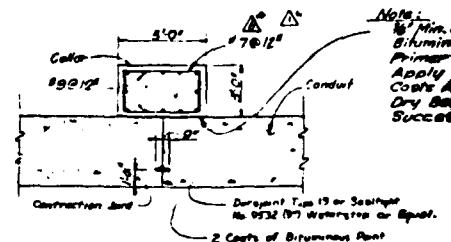


Labels to be Indented
Type of: e.g. - 1/4" High
US for Cast Iron End
DS for Downstream End

1/4" d. Brass Plug
E-lead - 1/4" High
1/4" x 1/4" x 1/4" x 1/4"
of 1/4" x 1/4" x 1/4"
of 1/4" x 1/4" x 1/4"

Note:
As Indicated on Drawings
As 1/4" Brass Plug
To Federal Spec. GG-B-750 (AMC)

REFERENCE MARK
BRASS PLUG

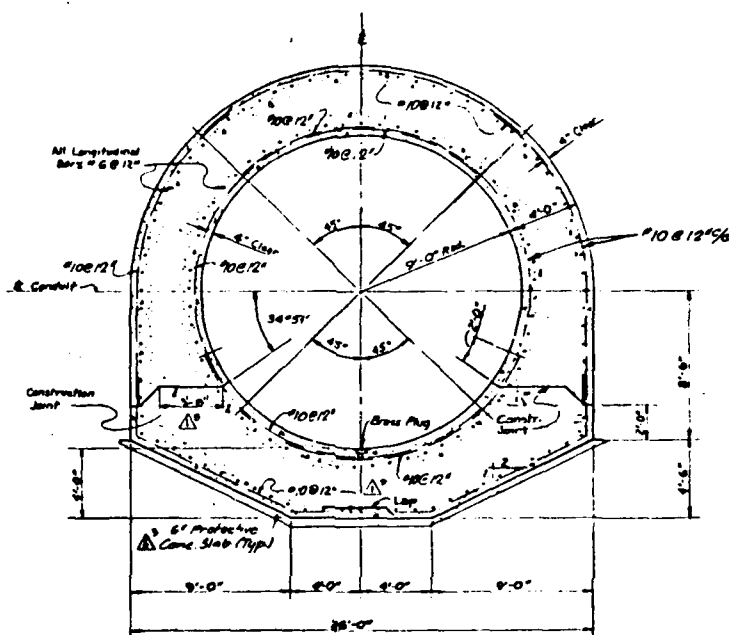


Note:
1/4" Min.
Bituminous
Paint
Apply
Coats of
Dry Bit
Success

SECTION A

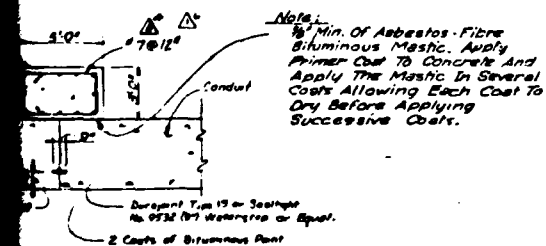
TYPICAL FOR CONDUIT DESIGNS A, B & C
SCALE: 1/4" = 1'

TO ACCOMPANY FINAL FOUNDATION



LITHS ⑨ thru ⑳
ST DESIGN 'B'
SCALE: 1/4" = 1'

MONOLITHS 24" to 60"
CONDUIT DESIGN C'
SCALE: 1"=1'

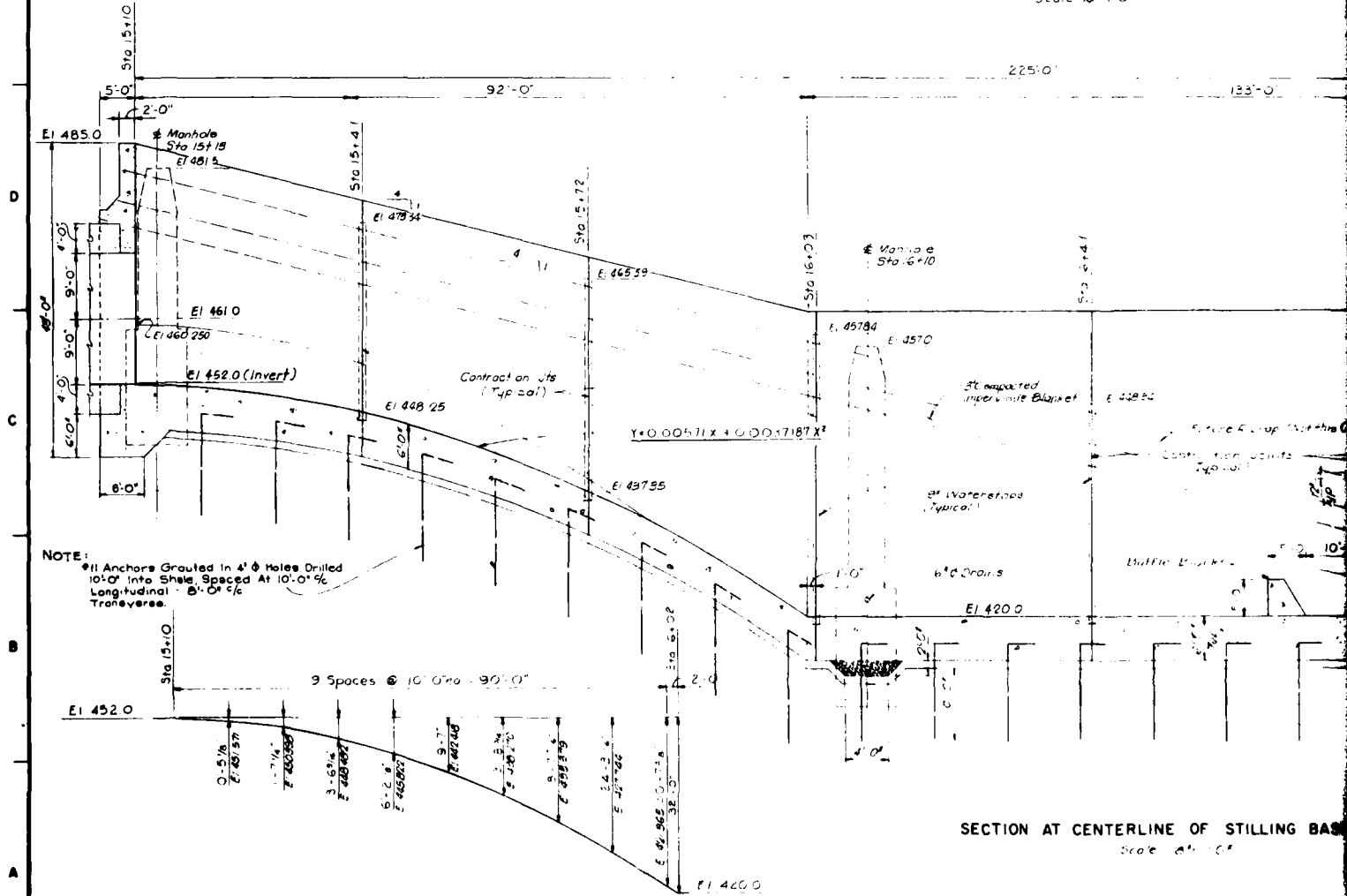
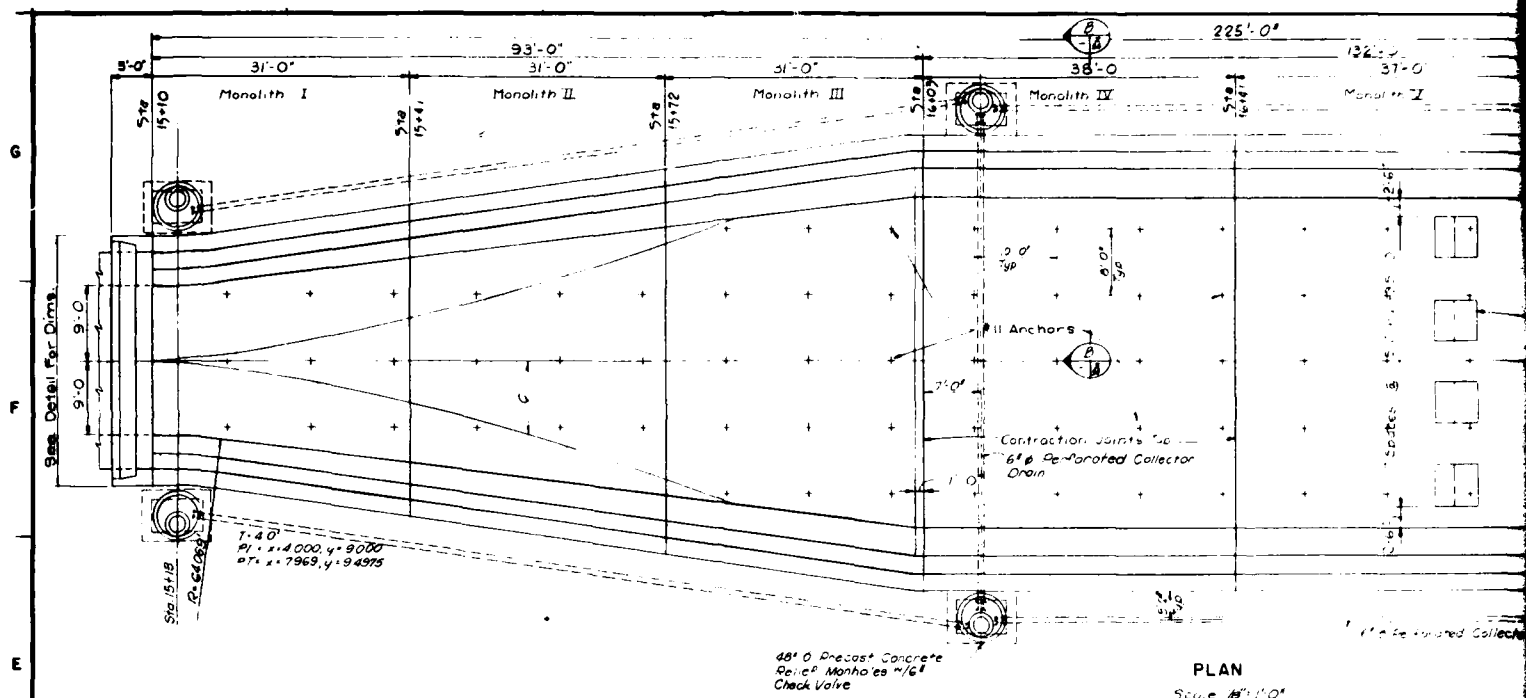


- Notes: 1. For General Notes, See Sheet 2-1
- 2. Concrete For Joints Shall Be High Strength (40,000 PSI)
- 3. Concrete Strength 31 25 Days
- 3. Long Joint Between Vets Island They Construction Joint
- 4. See She 1-5 For Location of Spacing
- 5. See SpH 1-3 For Plan and Profile of Conduit

RECORD DRAWING - WORK AS SUIT

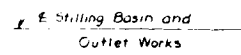
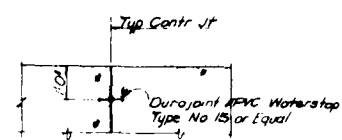
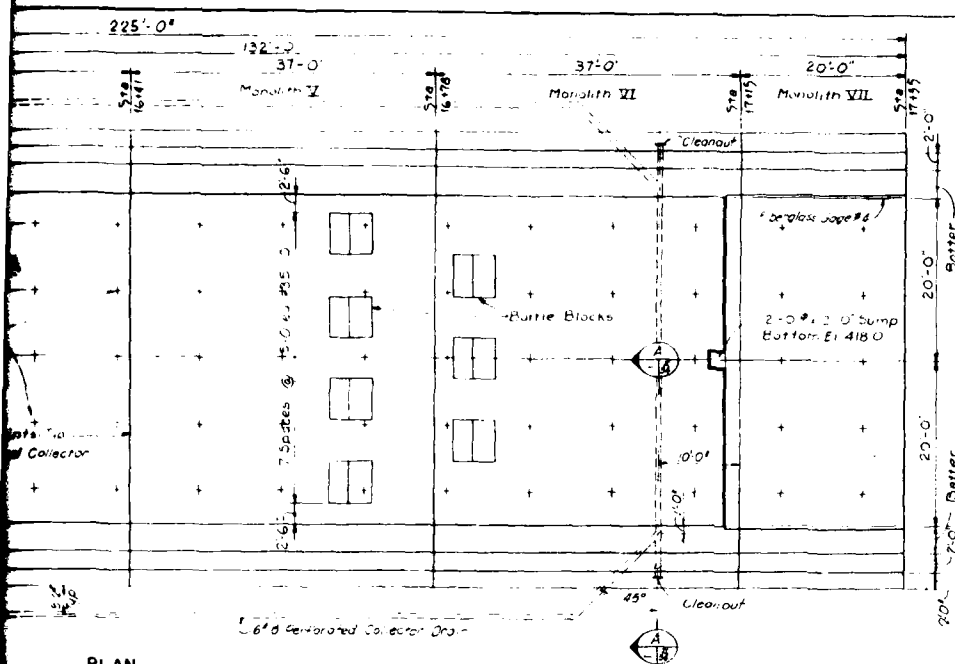
SECTION  PRODUCT DESIGNS A, B & C
SCALE: 1/8" = 1'

PREPARE, REPAIRS AND CHANGES CONCRETE REINFORCING PORT WORTH TEXAS		U. S. ARMY ENGINEER DISTRICT, PORT WORTH CORPS OF ENGINEERS PORT WORTH TEXAS	
DRAWING NO. 413		BRAZOS RIVER BASIN, TEXAS LANEPORT RESERVOIR SAN GABRIEL RIVER, TEXAS	
CONDUIT CONCRETE & REINFORCING DETAILS			
DRAWING NO. 40		SPECIFICATIONS AND DETAILS SPECIFICATIONS DATED 1915 DRAWING NUMBER 37	

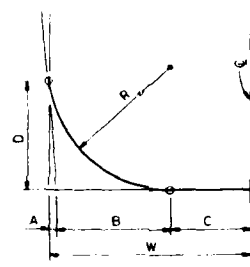


PAVEMENT CURVE COORDINATES ALONG E
Scale 1/32" = 1'-0"

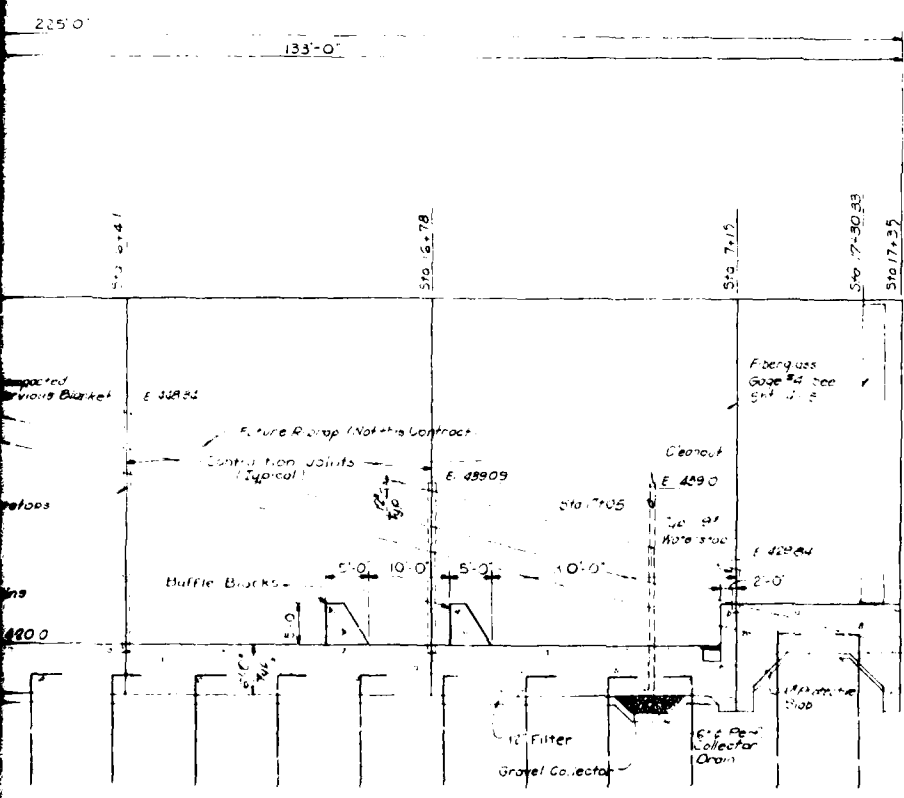
TO ACCOMPANY FINAL



FLOW →



STA.	W	C	R	A	B	D
15 + 10	8-11%	0-0	9-0	0-8%	8-5%	8-3
15 + 20	9-8%	0-11%	8-9	0-8%	8-1%	8-1
15 + 30	10-11%	2-8	8-3%	0-7%	7-7%	7-6
15 + 40	12-5%	4-10%	7-4%	0-6%	6-9%	6-8%
15 + 50	13-5%	7-5%	6-0%	0-5%	5-6%	5-6%
15 + 60	14-8%	10-4%	4-4%	0-4%	4-0%	4-0%
15 + 70	15-11%	13-7%	2-4%	0-2%	2-2%	2-2%
15 + 80	17-2%	17-2%	0-0	0-0	0-0	0-0
15 + 90	18-5%	18-5%	0-0	0-0	0-0	0-0
16 + 00	19-9%	19-9%	0-0	0-0	0-0	0-0
16 + 02	20-0	20-0	0-0	0-0	0-0	0-0



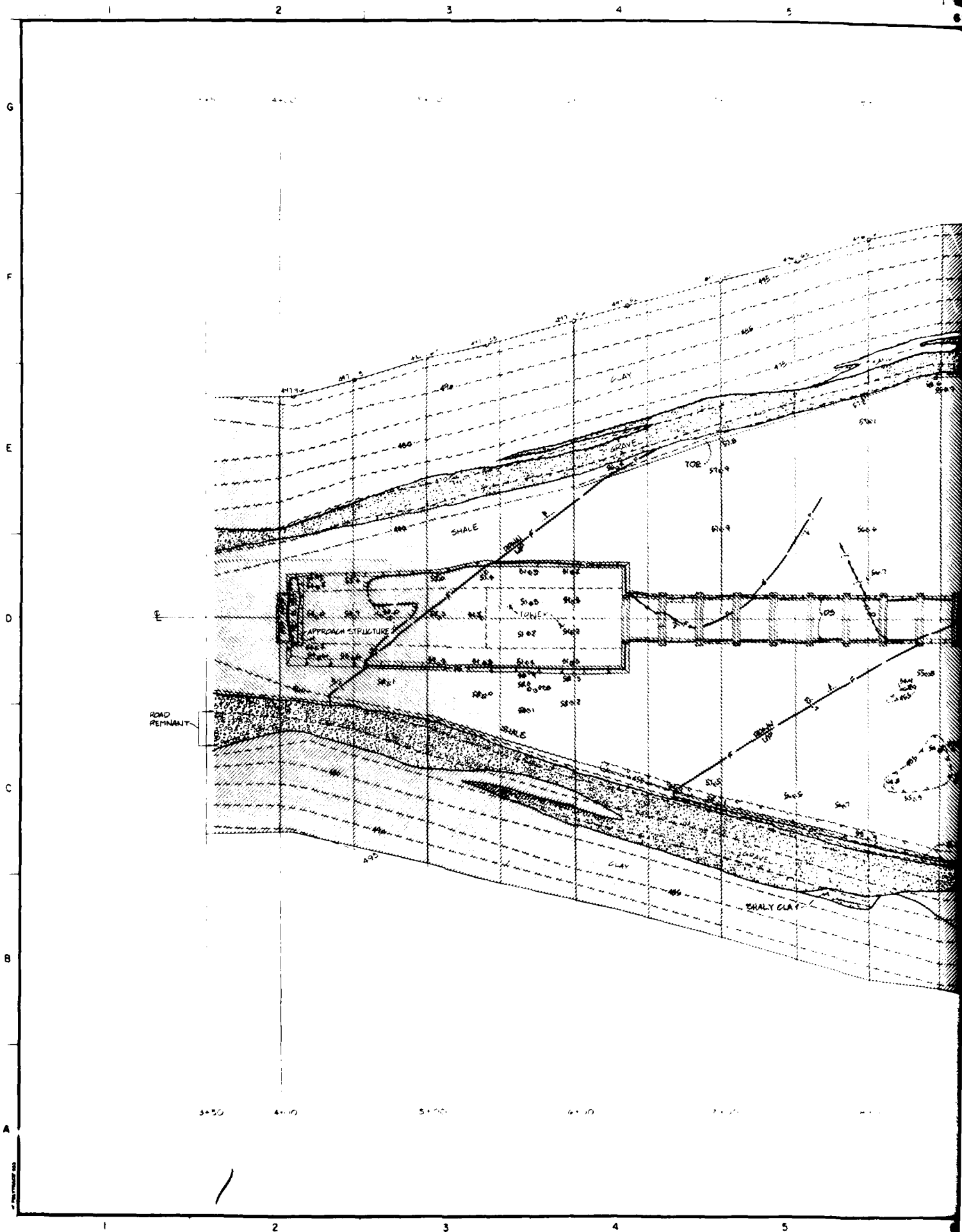
F1 462.0

F. 425.0

E 490

E 4.2 U

1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50		51		52		53		54		55		56		57		58		59		60		61		62		63		64		65		66		67		68		69		70		71		72		73		74		75		76		77		78		79		80		81		82		83		84		85		86		87		88		89		90		91		92		93		94		95		96		97		98		99		100		101		102		103		104		105		106		107		108		109		110		111		112		113		114		115		116		117		118		119		120		121		122		123		124		125		126		127		128		129		130		131		132		133		134		135		136		137		138		139		140		141		142		143		144		145		146		147		148		149		150		151		152		153		154		155		156		157		158		159		160		161		162		163		164		165		166		167		168		169		170		171		172		173		174		175		176		177		178		179		180		181		182		183		184		185		186		187		188		189		190		191		192		193		194		195		196		197		198		199		200		201		202		203		204		205		206		207		208		209		210		211		212		213		214		215		216		217		218		219		220		221		222		223		224		225		226		227		228		229		230		231		232		233		234		235		236		237		238		239		240		241		242		243		244		245		246		247		248		249		250		251		252		253		254		255		256		257		258		259		260		261		262		263		264		265		266		267		268		269		270		271		272		273		274		275		276		277		278		279		280		281		282		283		284		285		286		287		288		289		290		291		292		293		294		295		296		297		298		299		300		301		302		303		304		305		306		307		308		309		310		311		312		313		314		315		316		317		318		319		320		321		322		323		324		325		326		327		328		329		330		331		332		333		334		335		336		337		338		339		340		341		342		343		344		345		346		347		348		349		35	
---	--	---	--	---	--	---	--	---	--	---	--	---	--	---	--	---	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	----	--



8+00

9+00

10+00

G

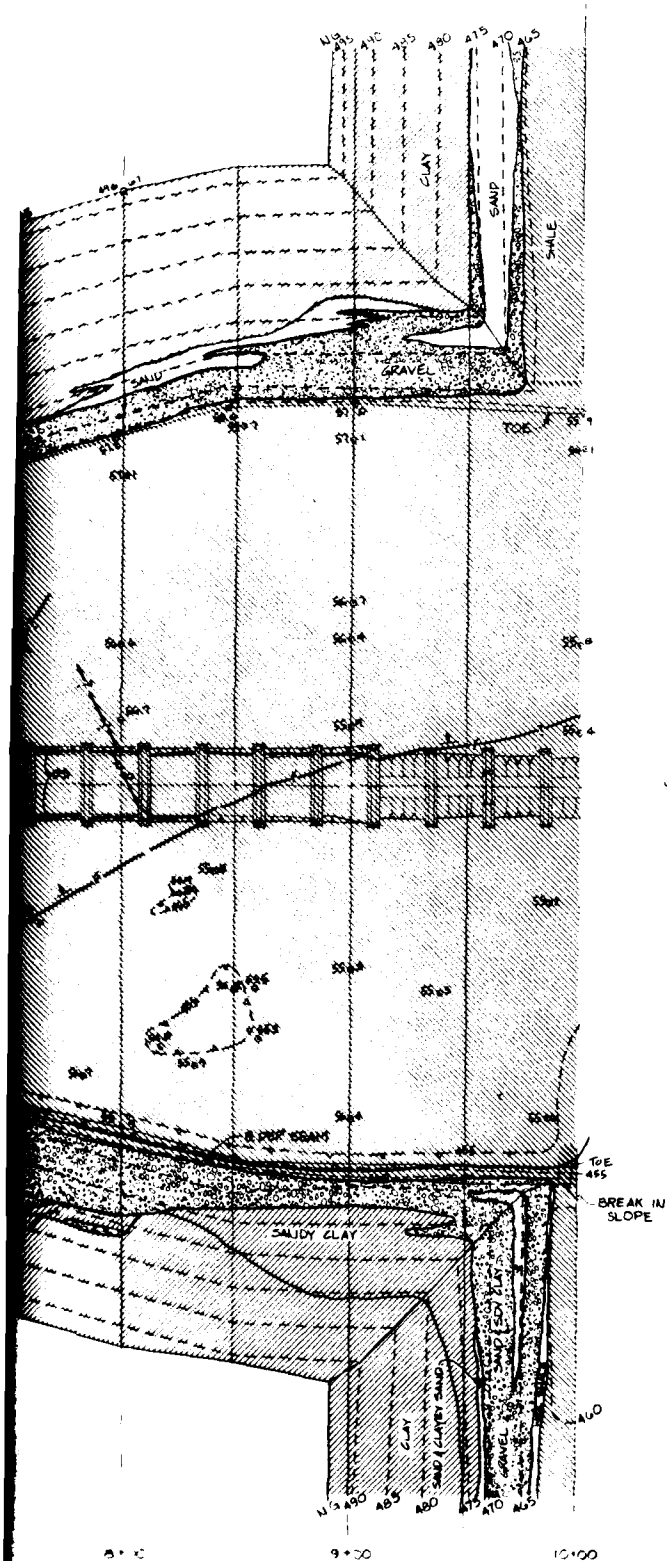
F

E

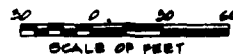
D

C

B



NOTE:
FOR MAPPING SYMBOLS, SEE PLATE II.



GRANGER LAKE
SAN GABRIEL RIVER, TEXAS

FINAL FOUNDATION REPORT

OUTLET WORKS
GEOLOGY AND EXCAVATION
STATION 3+88 TO STATION 10+00

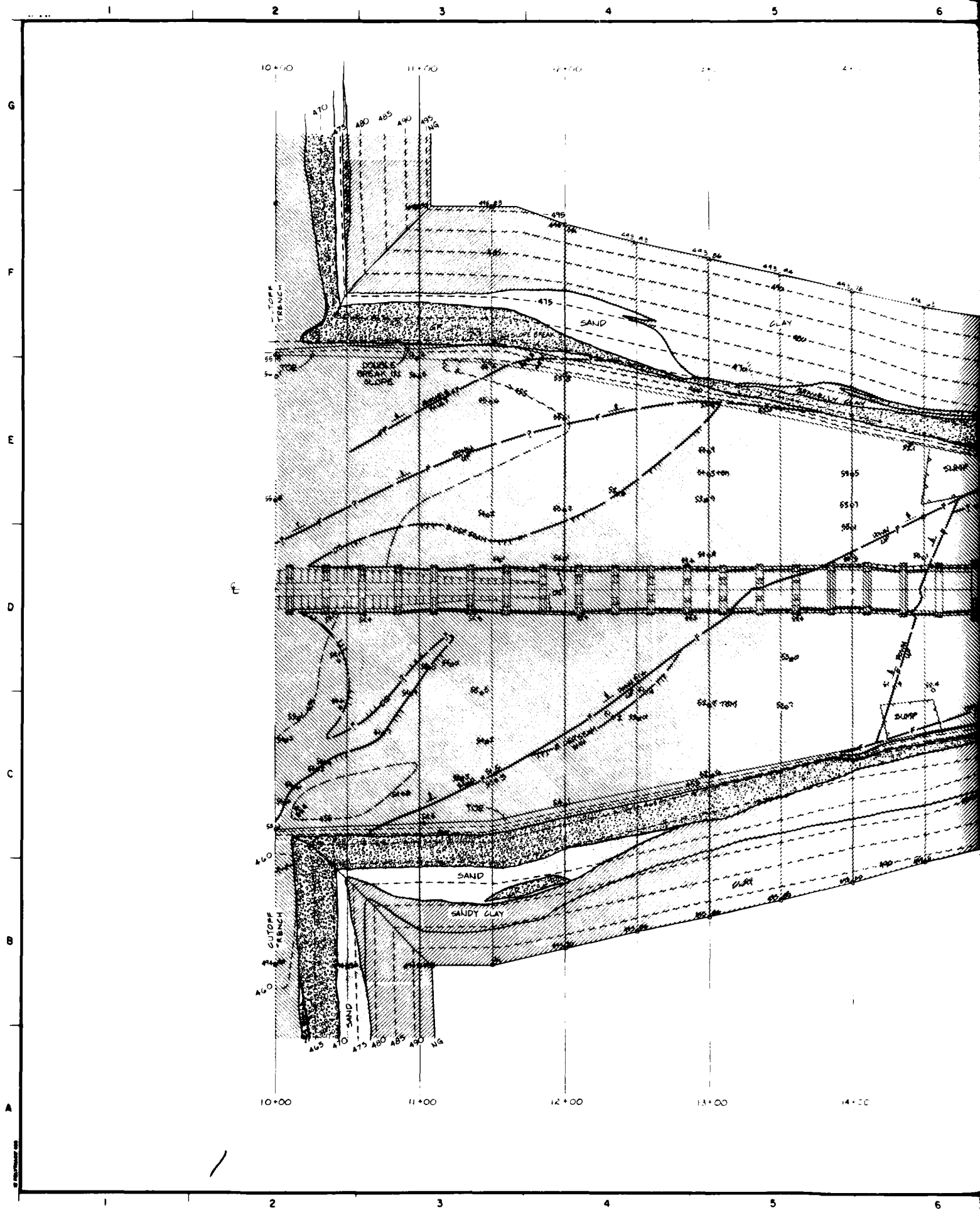
ARMY ENGINEER DISTRICT, FORT WORTH

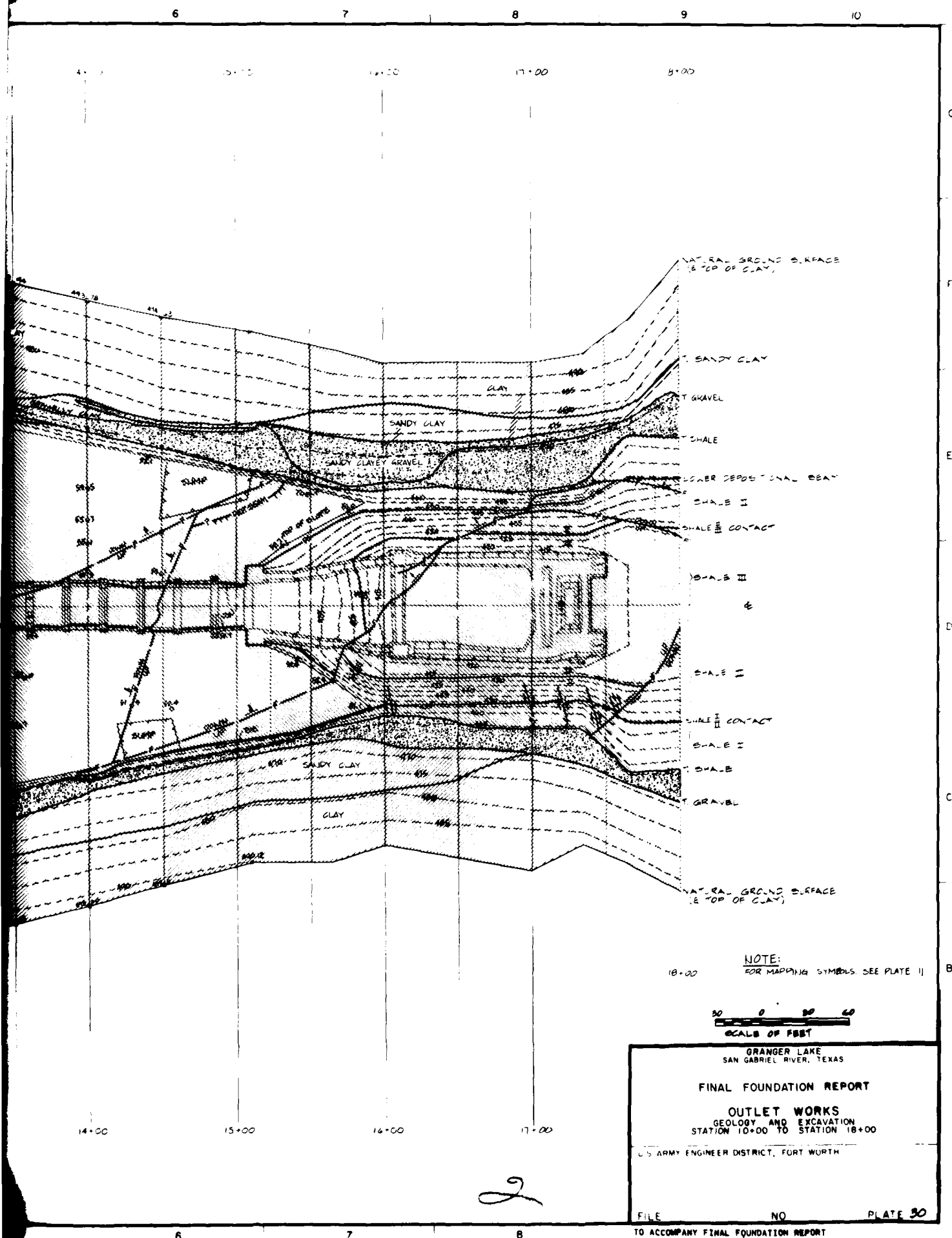
FILE

NO

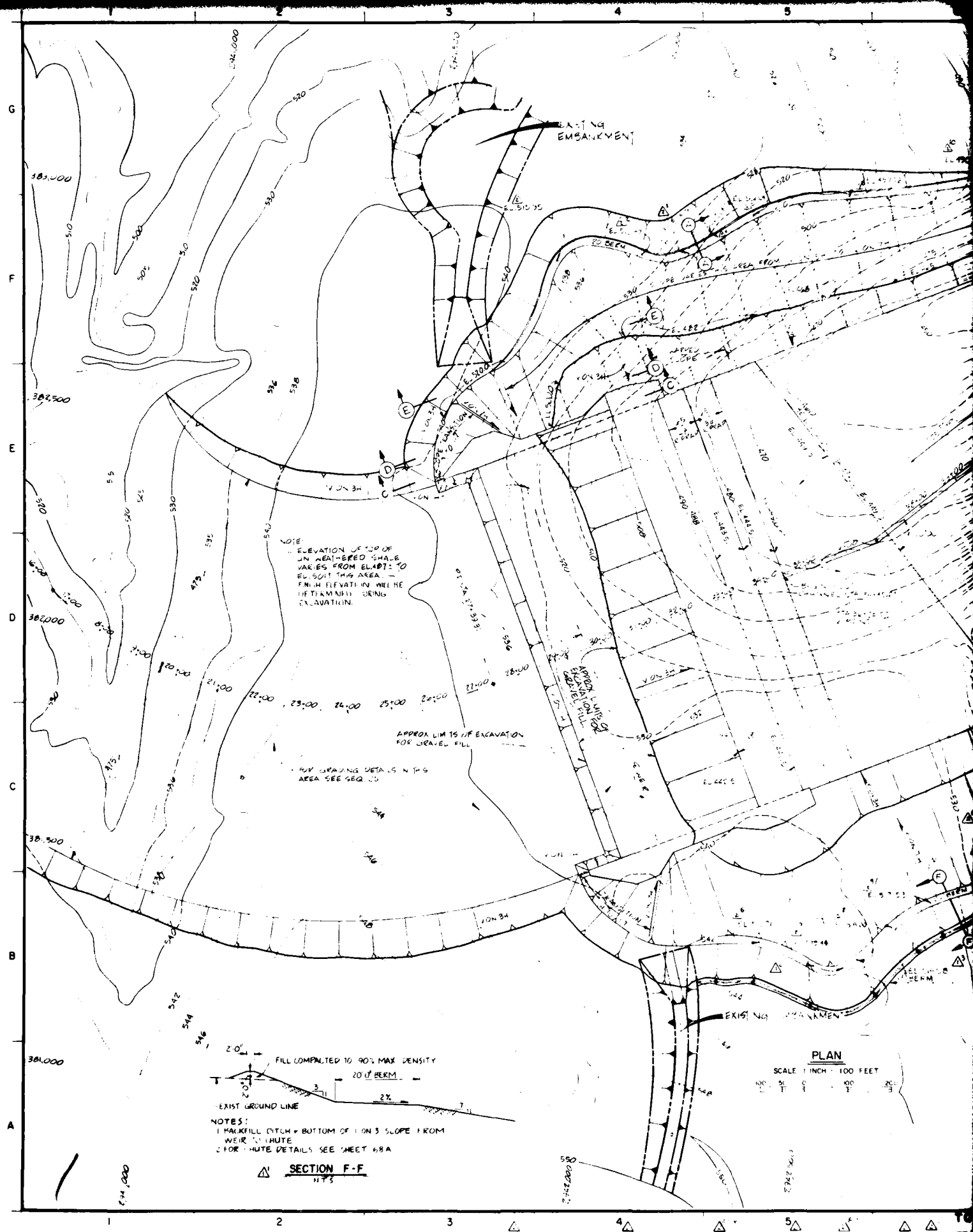
PLATE 29

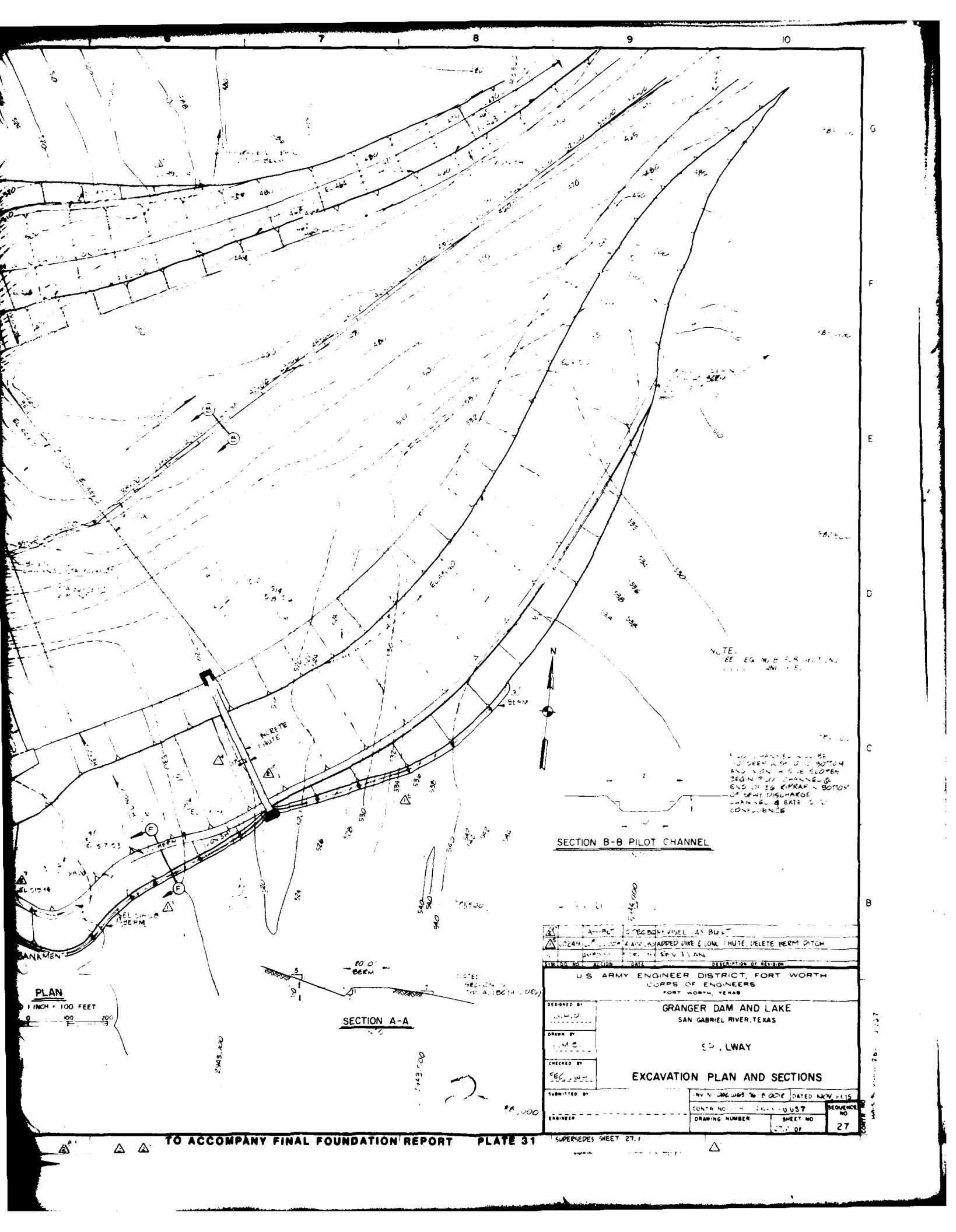
TO ACCOMPANY FINAL FOUNDATION REPORT





TO ACCOMPANY FINAL FOUNDATION REPORT





NOTE: SEE ELEVATION FOR LOCATION OF PILOT CHANNEL

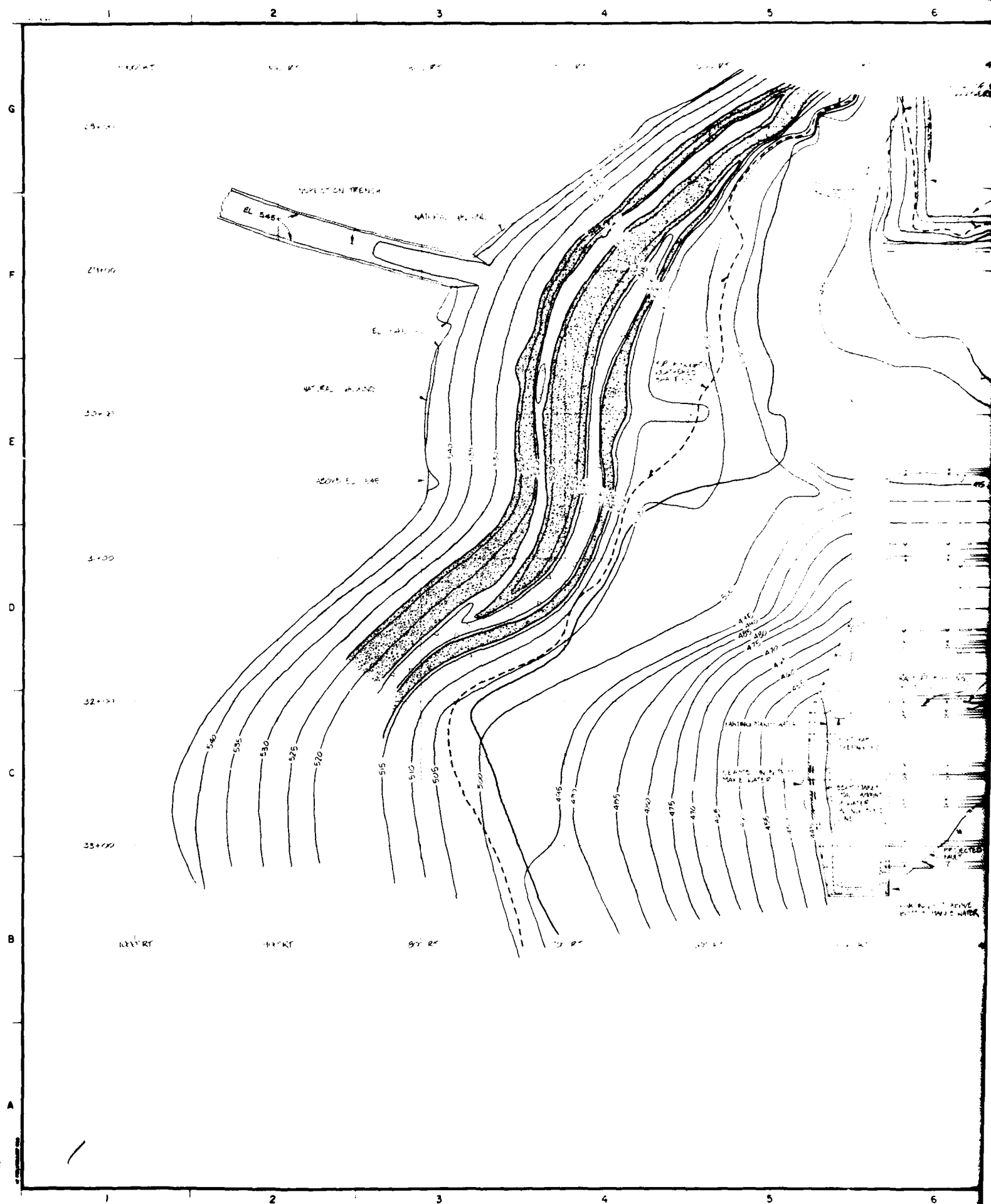
NOTE: SEE ELEVATION FOR LOCATION OF PILOT CHANNEL

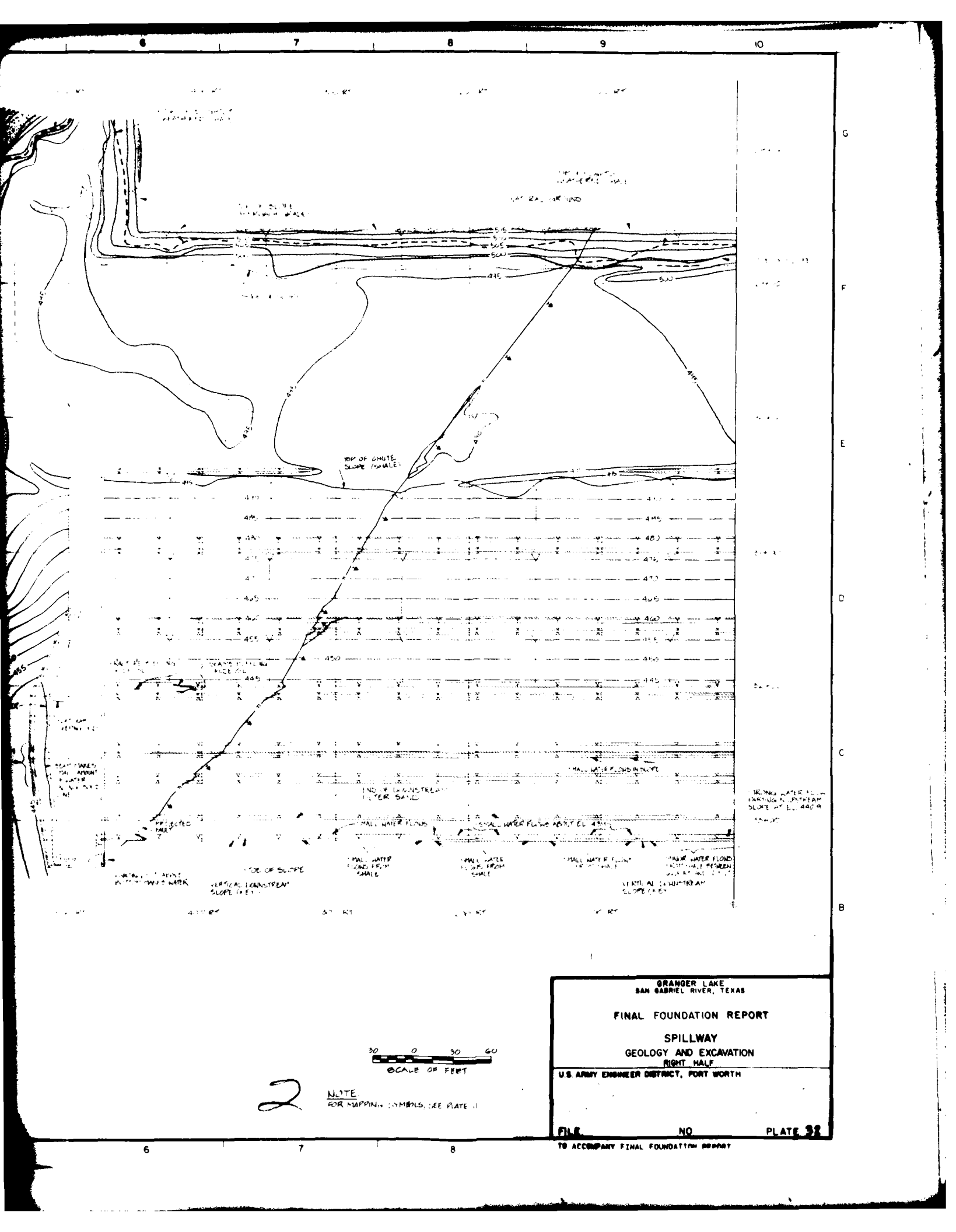
SECTION B-B PILOT CHANNEL

SECTION A-A

PLAN

1 INCH = 100 FEET





2

NOTE
FOR MAPPING SYMBOLS, SEE PLATE II

0 30 60
SCALE OF FEET

GRANGER LAKE
SAN GABRIEL RIVER, TEXAS

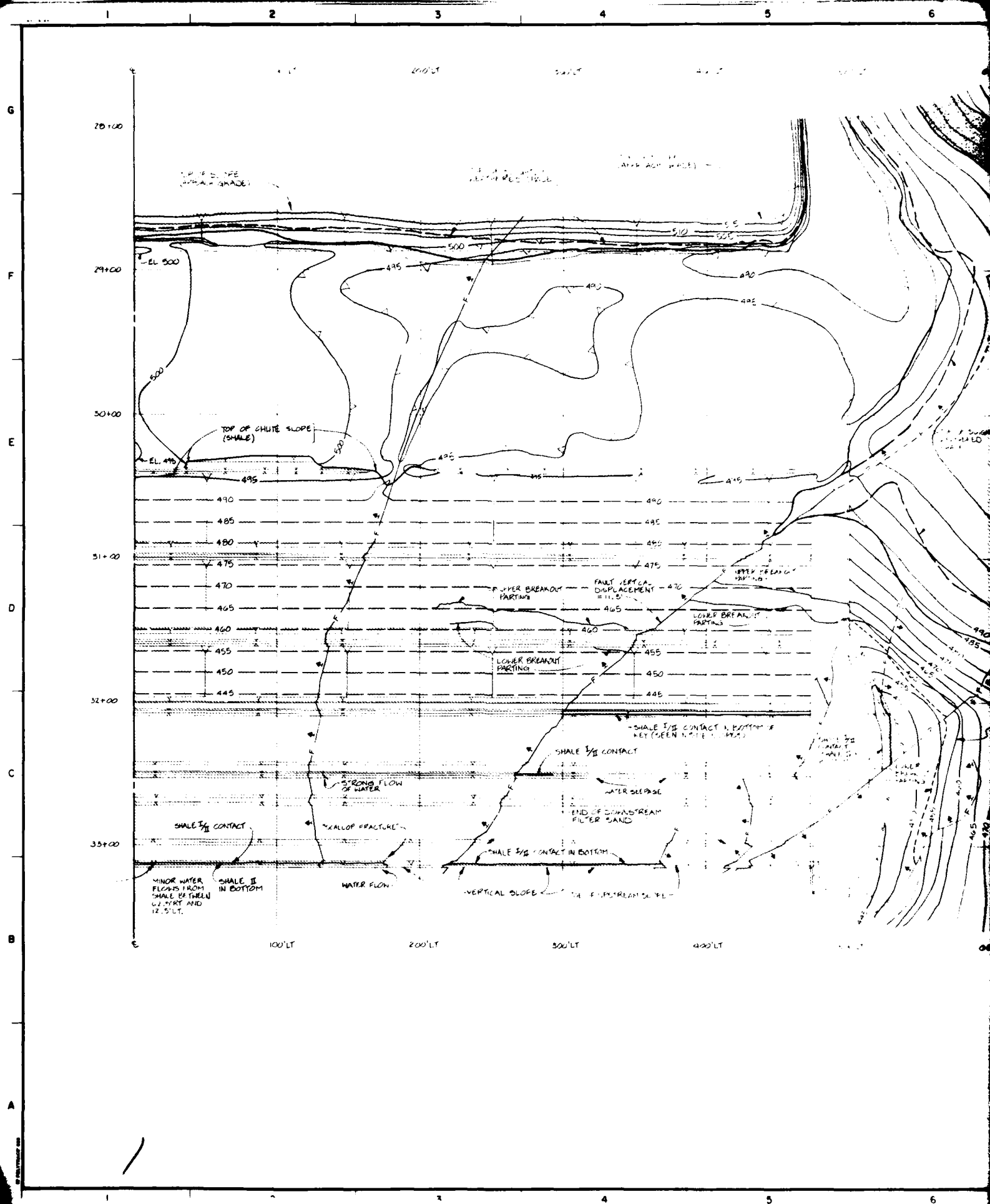
FINAL FOUNDATION REPORT

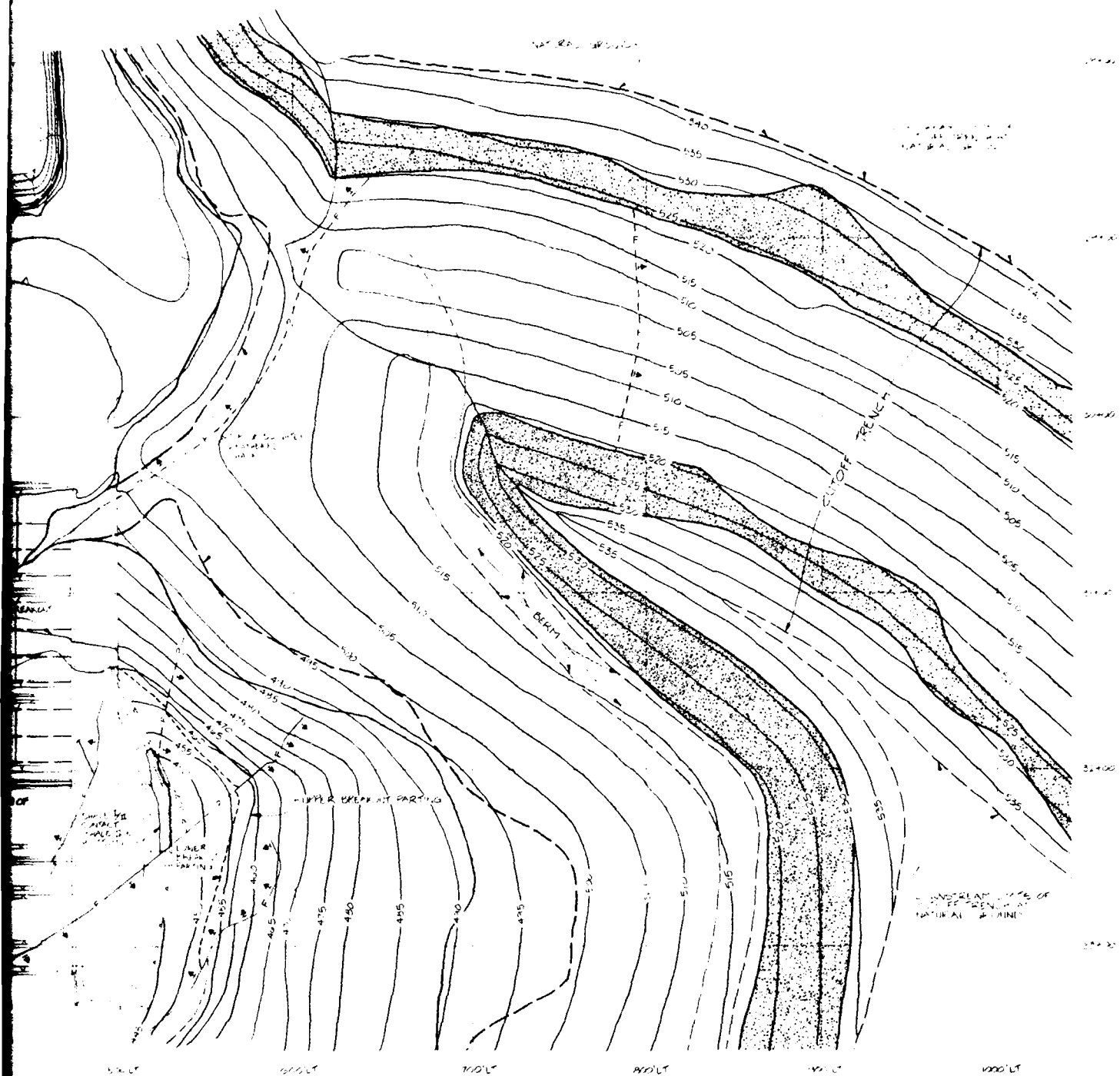
SPILLWAY
GEOLOGY AND EXCAVATION
RIGHT HALF

U.S. ARMY ENGINEER DISTRICT, FORT WORTH

FILE NO. PLATE 32

TO ACCOMPANY FINAL FOUNDATION REPORT





GRANGER LAKE
SAN GABRIEL RIVER, TEXAS

FINAL FOUNDATION REPORT

SPILLWAY GEOLOGY AND EXCAVATION LEFT HALF

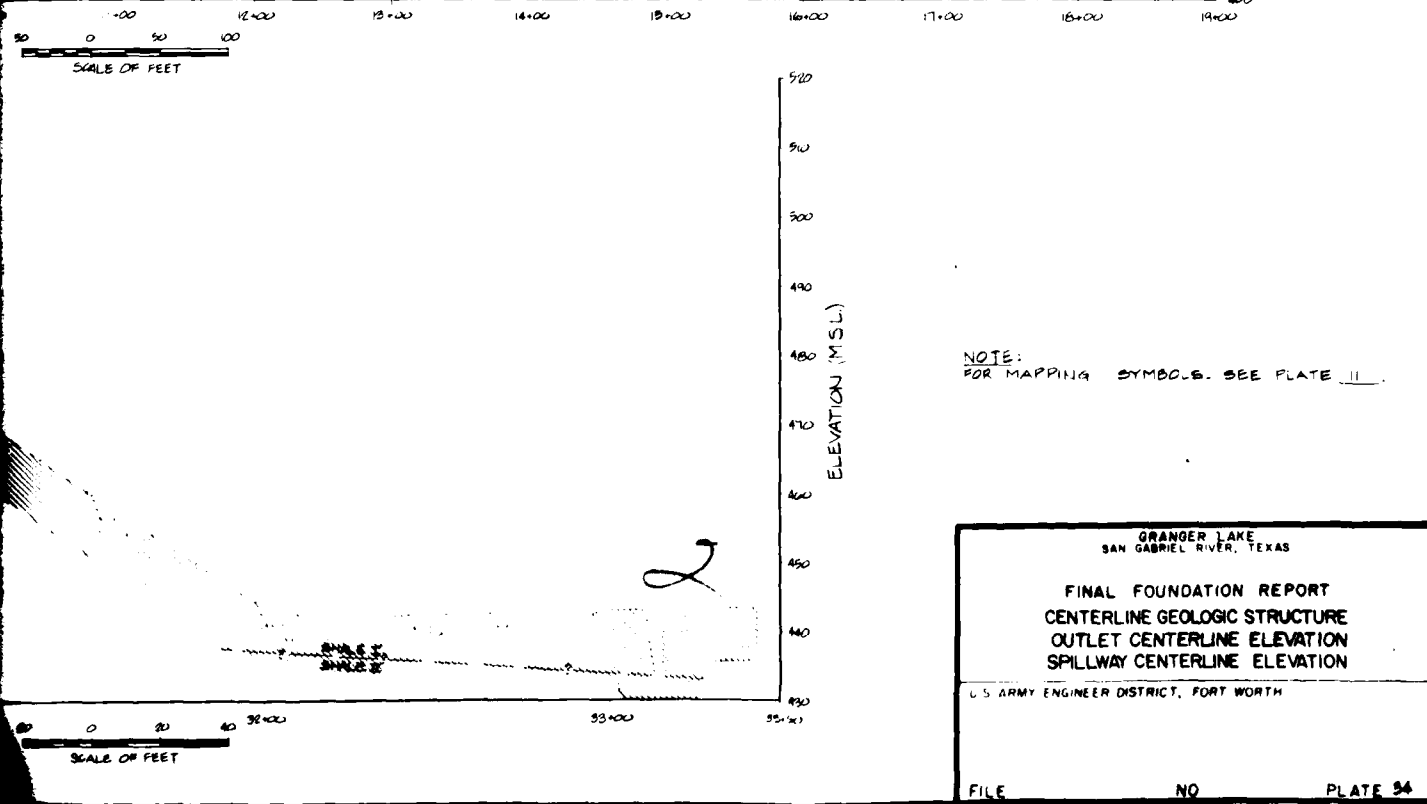
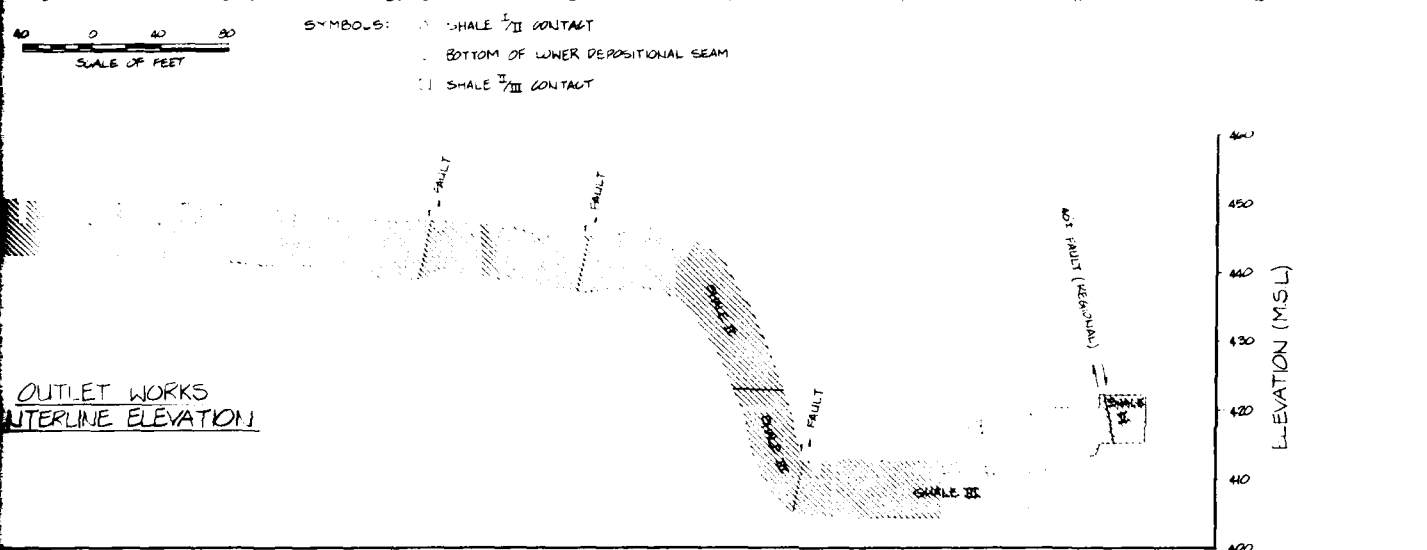
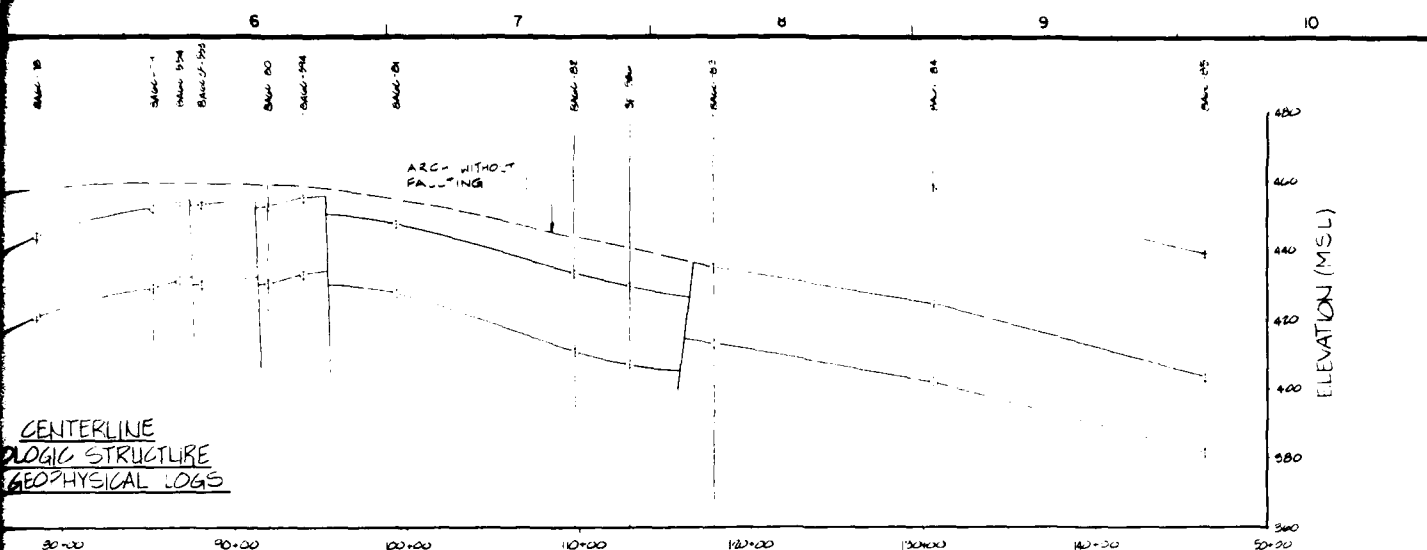
U.S. ARMY ENGINEER DISTRICT, FORT WORTH

FILE

NO

PLATE 38

TO ACCOMPANY FINAL FOUNDATION REPORT



NOTE:
FOR MAPPING SYMBOLS SEE PLATE II

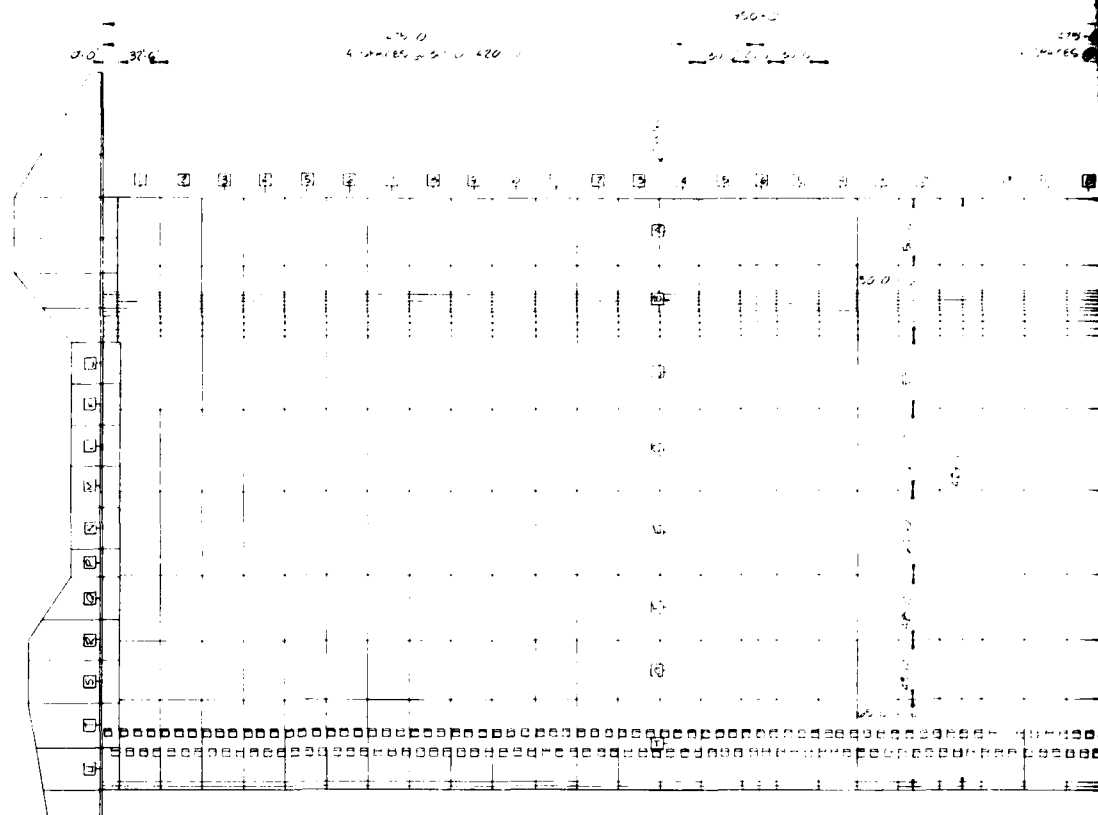
GRANGER LAKE
SAN GABRIEL RIVER, TEXAS

FINAL FOUNDATION REPORT
CENTERLINE GEOLOGIC STRUCTURE
OUTLET CENTERLINE ELEVATION
SPILLWAY CENTERLINE ELEVATION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH

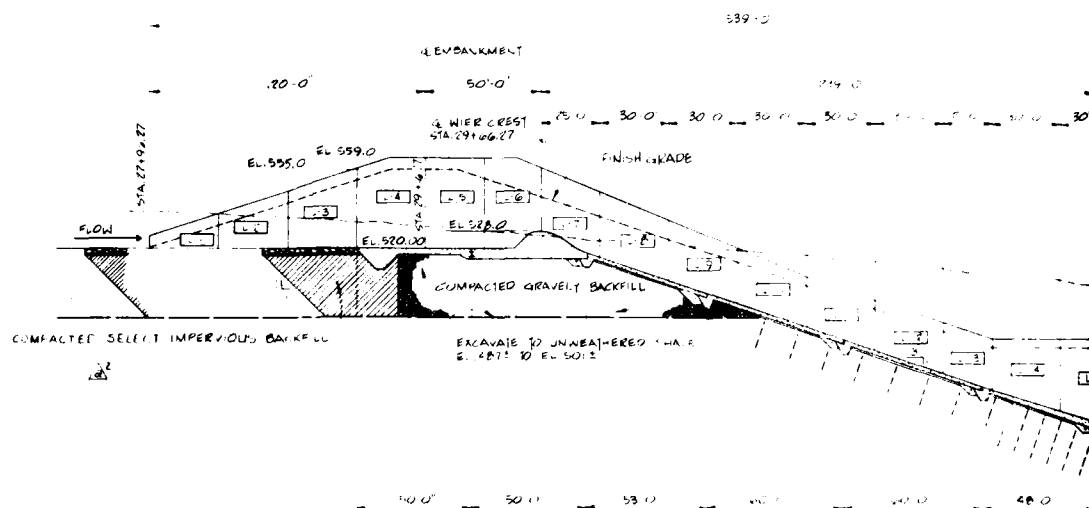
FILE NO. PLATE 34

TO ACCOMPANY FINAL FOUNDATION REPORT



PLAN

SCALE 1 INCH = 50 FEET



ELEVATION

SCALE 1 INCH = 30 FEET

BAR LAP LENGTH (INCHES)	EMBEDMENT LENGTH (INCHES)
SIDE TOP BARS OTHER BARS	TOP BARS OTHER BARS
5	13
4	10
5	22
6	27
1	33
8	44
9	56
10	71
11	87
14	

BAR LAP LENGTH (INCHES)	EMBEDMENT LENGTH (INCHES)
SIDE TOP BARS OTHER BARS	TOP BARS OTHER BARS
5	13
4	10
5	22
6	27
1	33
8	44
9	56
10	71
11	87
14	

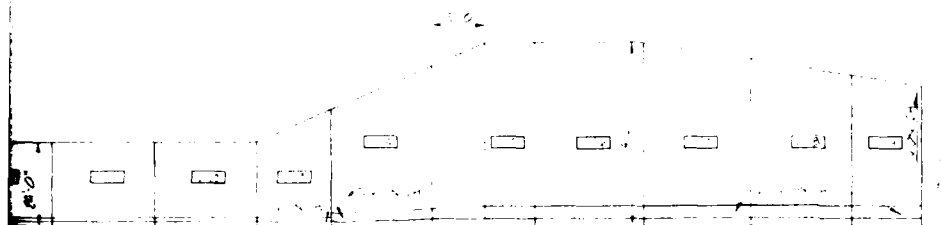


TOP BARS ARE HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 2 LINES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR

LAP LENGTHS - JOINTS ARE FOR CLAS "B" SPLICES LAP LENGTHS AND EMBEDMENTS - JOINTS ARE FOR PARS - PLACED LATERALLY $\geq 6 \phi$ AND $\geq 3'$ FROM THE SIDE FACE - IN ACCORDANCE WITH ACI 308

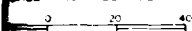
PLATE 38

SUBMITTED BY	INV NO. DRAWING 16-B-0012		DATED NOV. 1975
	CONTR NO.		SEQUENCE NO.
ENGINEER	DRAWING NUMBER	SHEET NO.	
		32.2 OF 32	

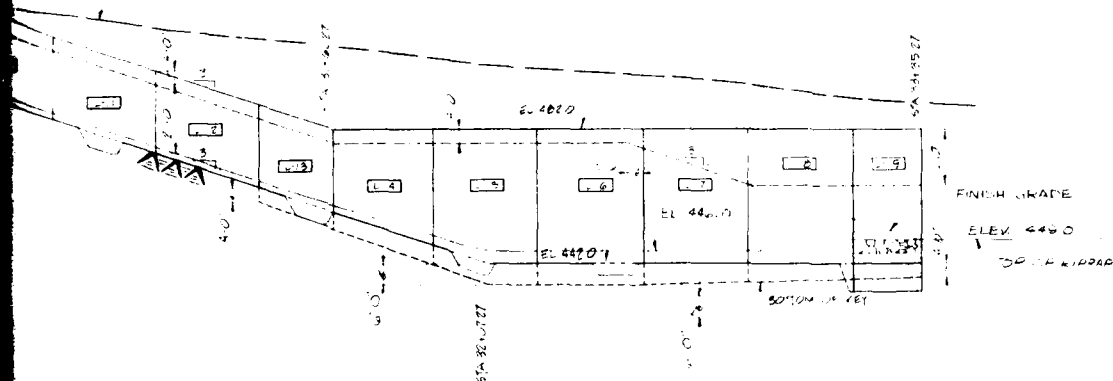


PLAN

SCALE: 1 INCH = 20 FEET

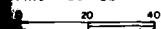


APPROX. TOP OF NATURAL GROUND @ LEFT WALL

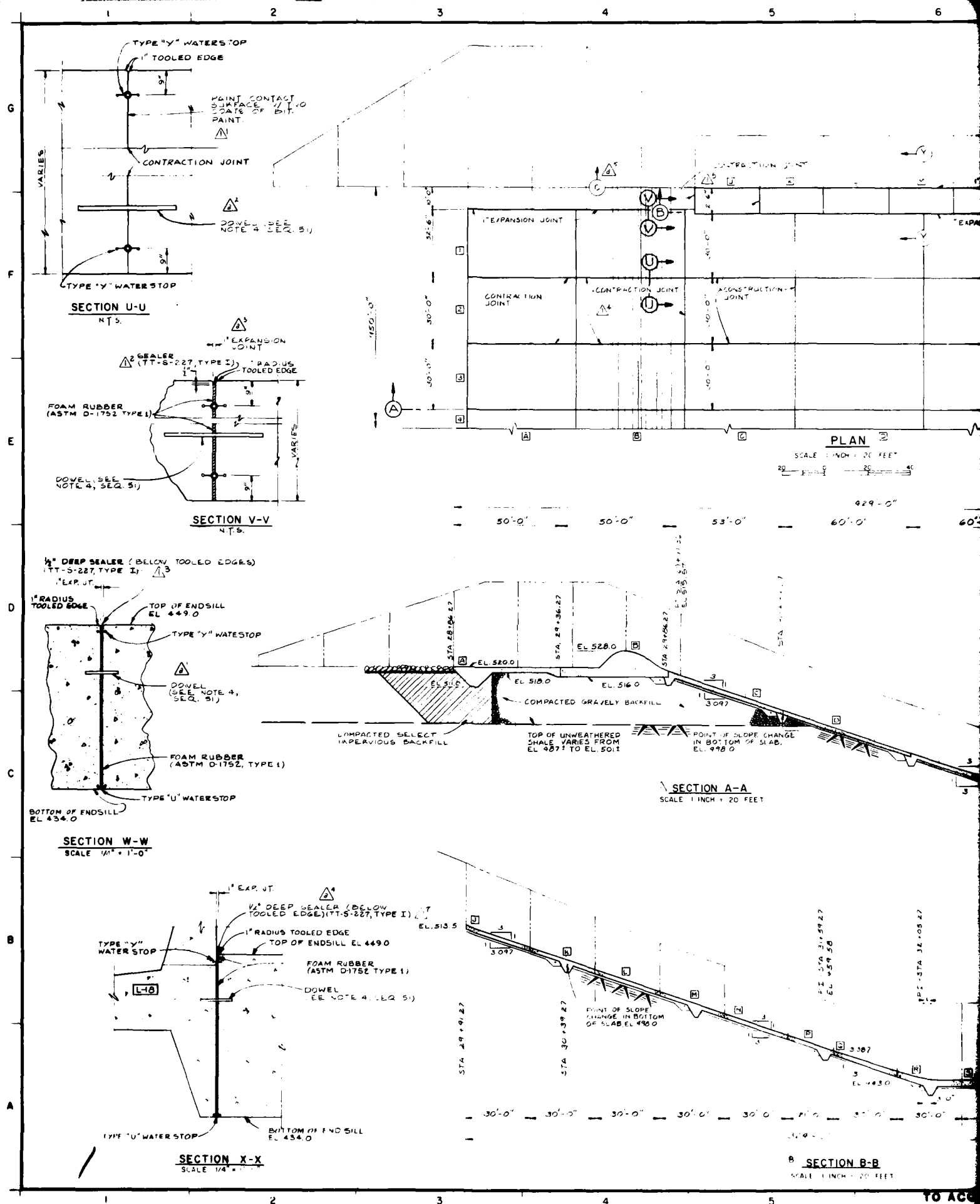


ELEVATION

SCALE: 1 INCH = 20 FEET

NOTES:
FOR GENERAL NOTES SEE SEQ. 32.

DESIGNED BY	AS BUILT	002600 REVISED AS BUILT
DRAWN BY	AM 0001	002600 REVISED TO REFLECT W.P. CHANGES
RECORD BY	DATE	DESCRIPTION OF REVISION
SUBMITTED BY	U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS	
ENGINEER	GRANGER DAM AND LAKE SAN GABRIEL RIVER TEXAS	
	SPILLWAY RETAINING WALL PLAN AND ELEVATION	
	BY N. DACW 106 76 B 0002	DATE: MAY 1979
	DRAWING NUMBER	SHEET NO. 33
		OF



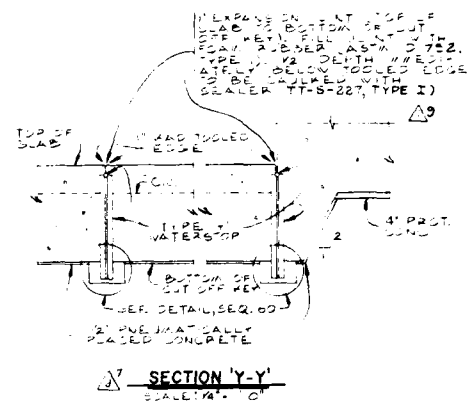
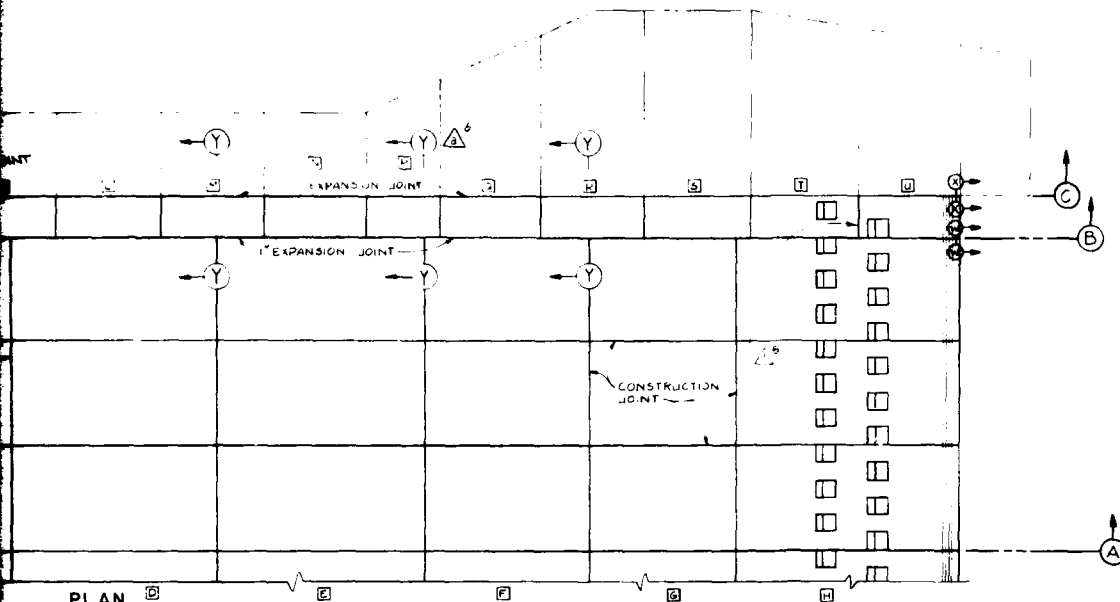
6

7

8

9

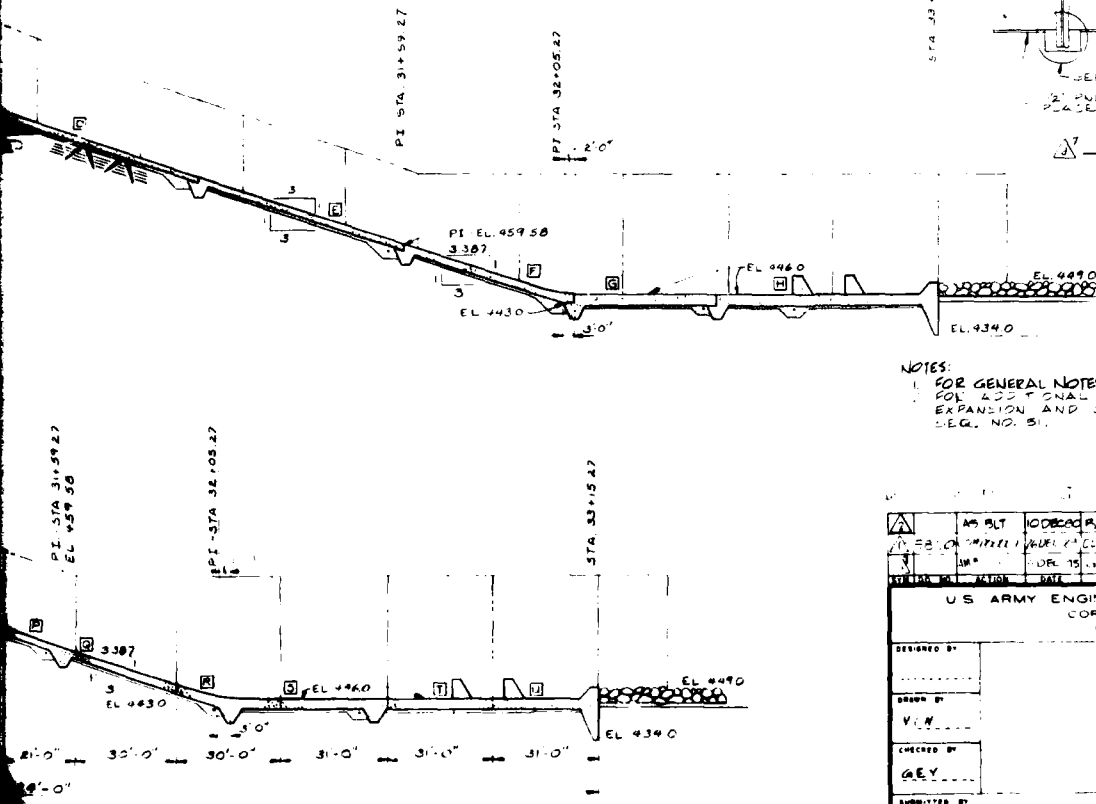
10



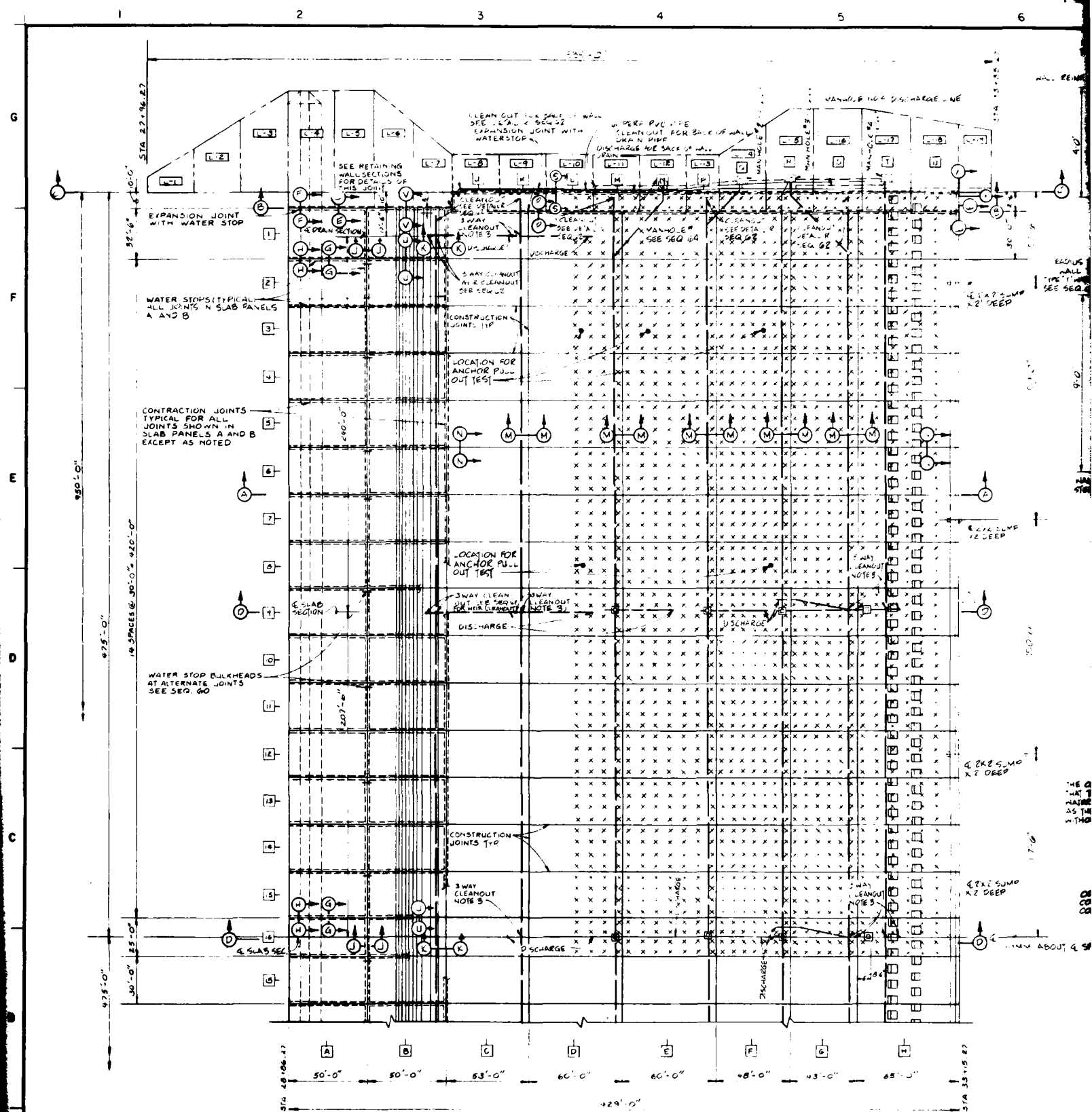
NOTES:

FOR GENERAL NOTES SEE SEQ. 38

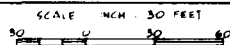
FOR ADDITIONAL DETAILS OF CONTRACTION, EXPANSION AND CONSTRUCTION JOINTS SEE SEQ. NO. 51.



AS BUILT	100% REVISED AS BUILT
DESIGNED BY	U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS
DRAWN BY	GRANGER DAM AND LAKE, SAN GABRIEL RIVER, TEXAS
CHECKED BY	SPILLWAY
APPROVED BY	SLAB-PLAN AND SECTIONS II
ENGINEER	INV. NO. 6000-16-00012 DATED NOV. 1975
	CONTR. NO. 117
	DRAWING NUMBER SHEET NO. 52



PLAN-SPILLWAY - LEFT HALF (RIGHT HALF OPPOSITE HAND)

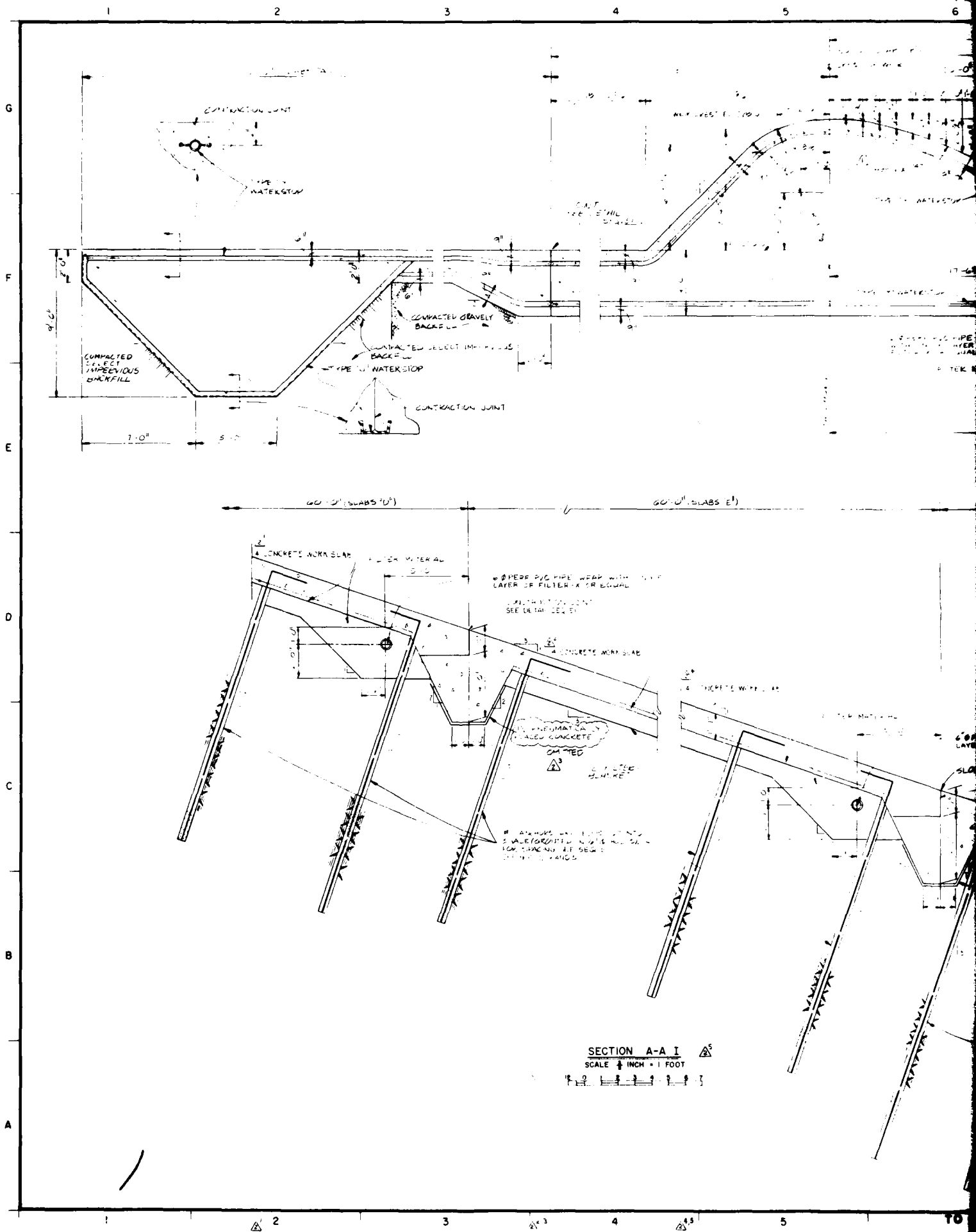


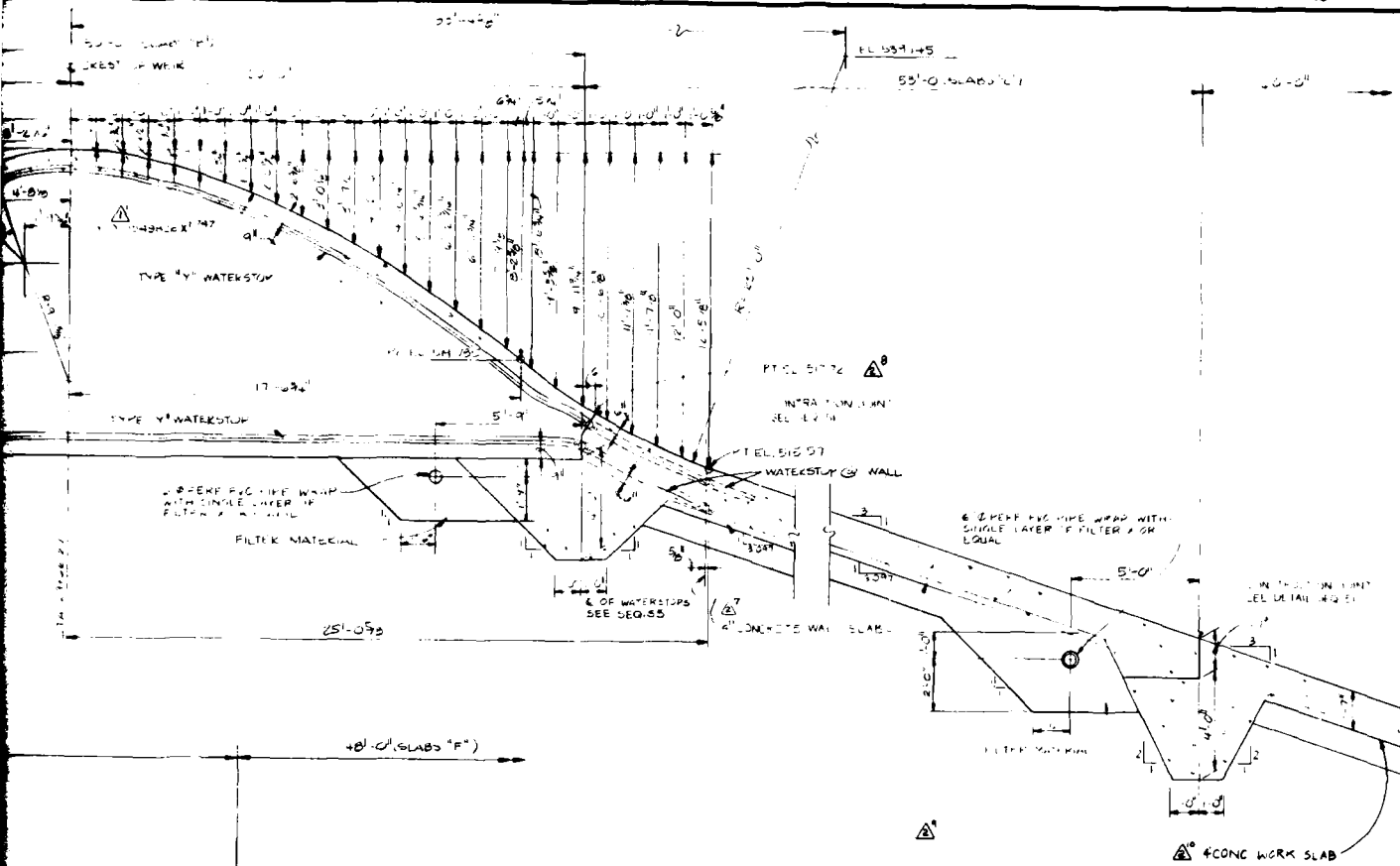
- NOTES:
1. FOR GENERAL NOTES, SEE SEQ. 32
 2. SLAB ANCHORS SHALL NOT BE RELOCATED SEE SEQ. 32
 3. 3 WAY CLEANOUT INCLUDES SECTION C-C AND D-D
 4. UNLESS OTHERWISE NOTED, DOWELS SHALL BE 1" DIA. ONE END OF DOWEL SHALL BE GRASSED AND PLANT
 5. FOR SECTION A-A, B-B, SEE SEQ. 57
 6. FOR SECTION C-C, SEE SEQ. 61
 7. FOR SECTION D-D, SEE SEQ. 62 & 63
 8. SECTIONS L-V, W-X SEE SEQ. 92



SUPERSEDES SHEET 5/1

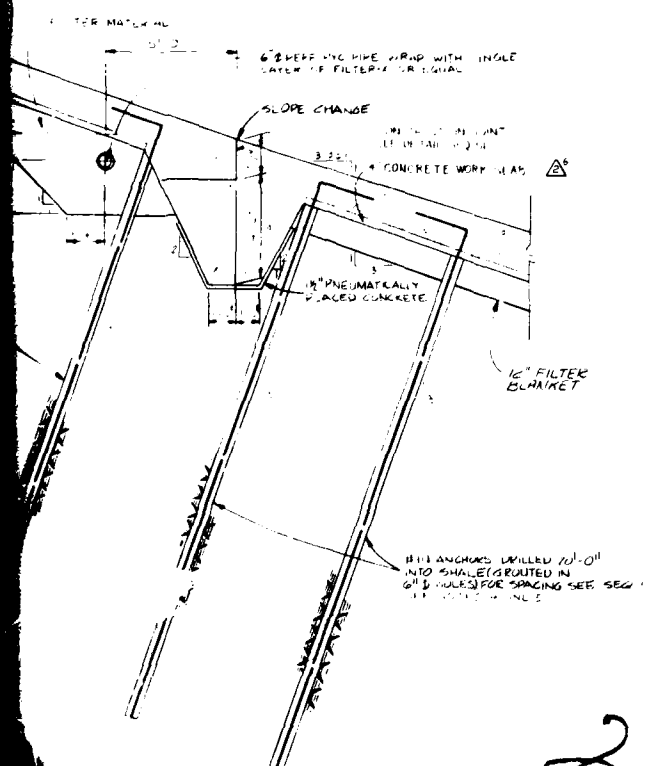
DRAWING OF WORK AS BUILT		<u>SECTION 5-P</u>	
		M.P.	
AS BLT	NO DEC 8	REVISED	AS BUILT
5820	76 DEC 8	LAR. SEC	E-E F.F. & P.P.
SMALL	NO	REVISED	ENTIRE SHEET
SECTION NO.	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
DESIGNED BY	GRANGER DAM AND LAKE SAN GABRIEL RIVER, TEXAS		
DRAWN BY			
IN CHARGE			
CHECKED BY	SPILLWAY		
	SLAB PLAN AND SECTIONS		
SUBMITTED BY	INV NO. 4	DATE NOV 77	SEQUENCE NO.
	CONTR NO.	SHEET NO.	51
	DRAWING NUMBER	SHEET NO.	51



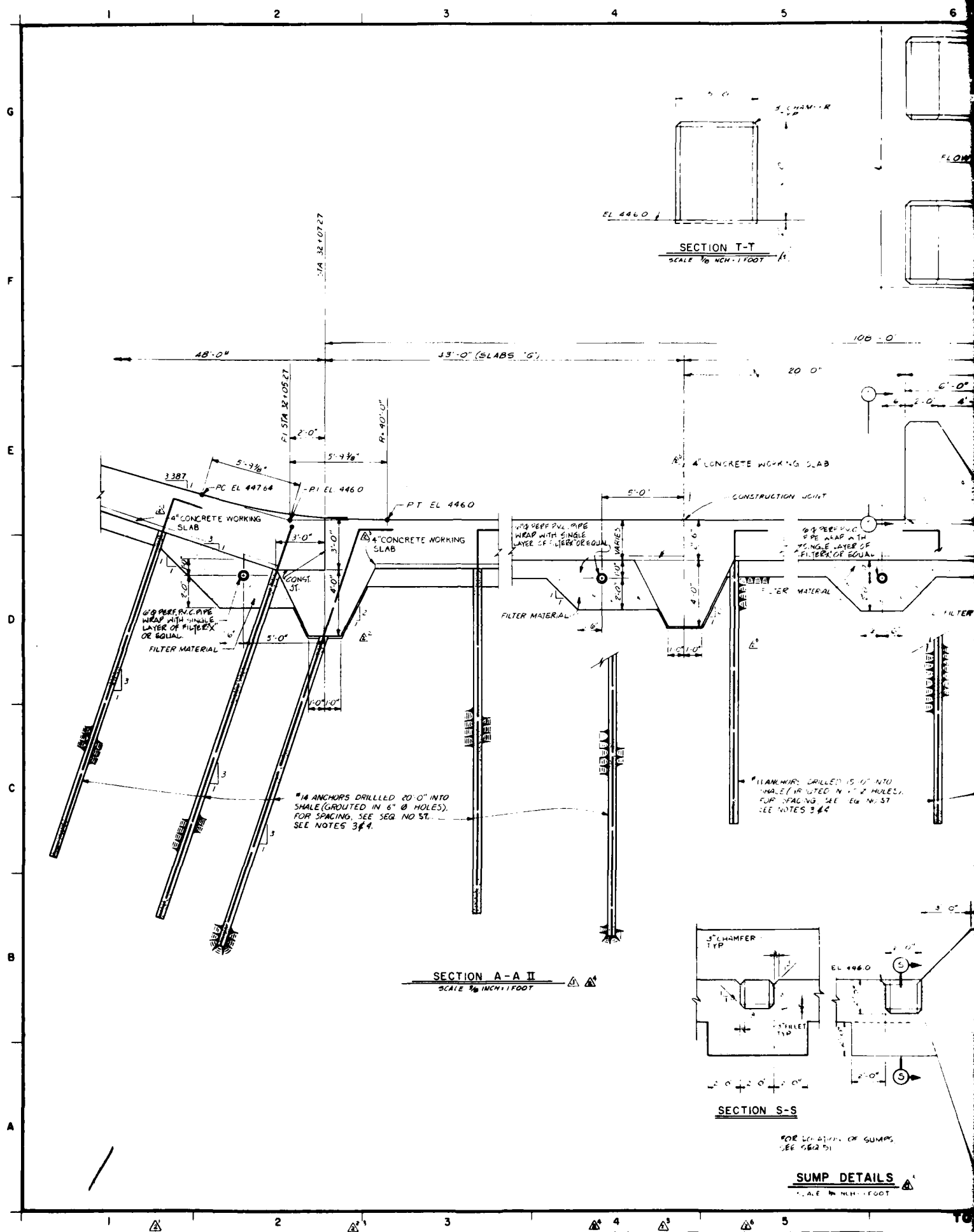


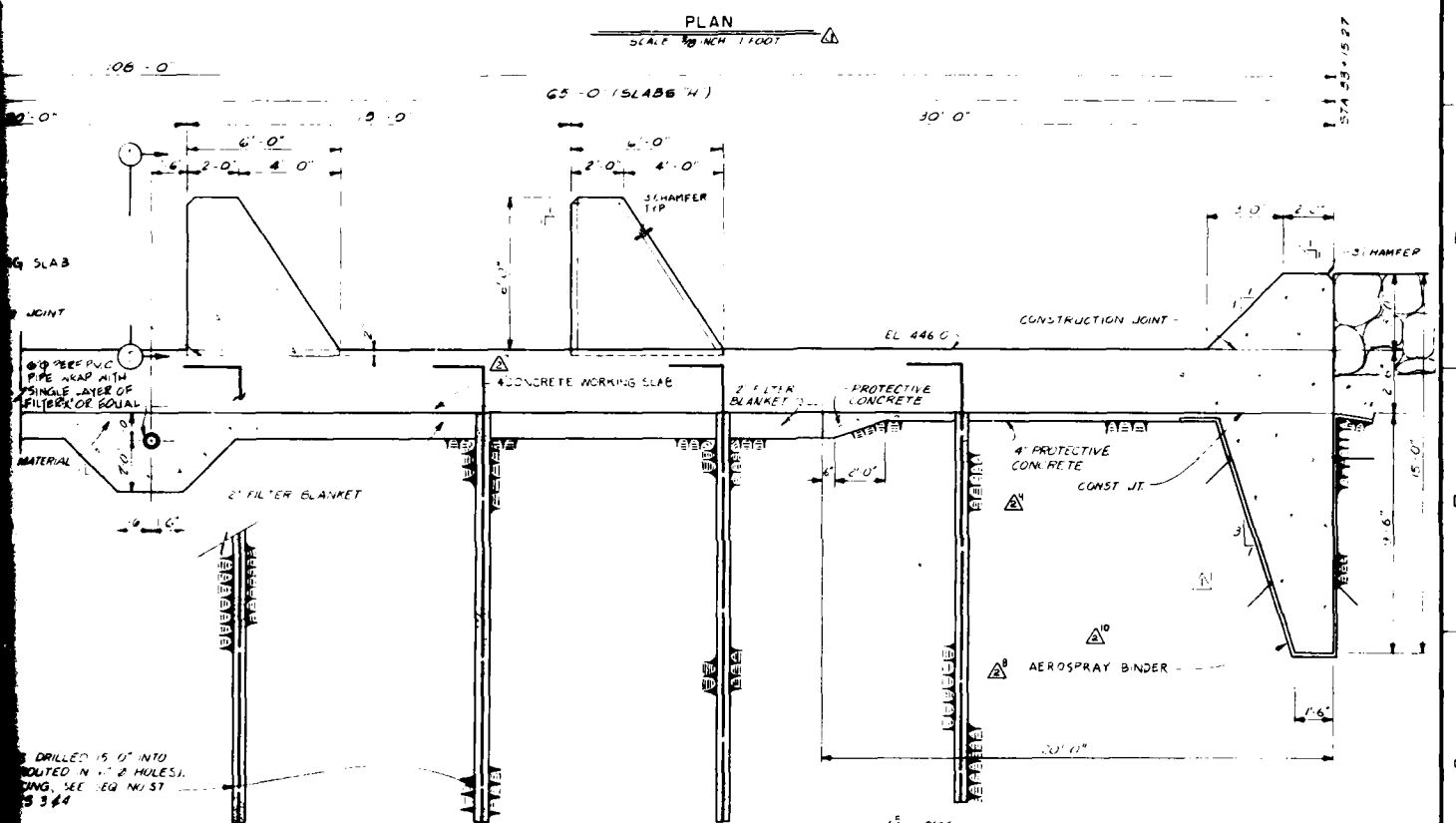
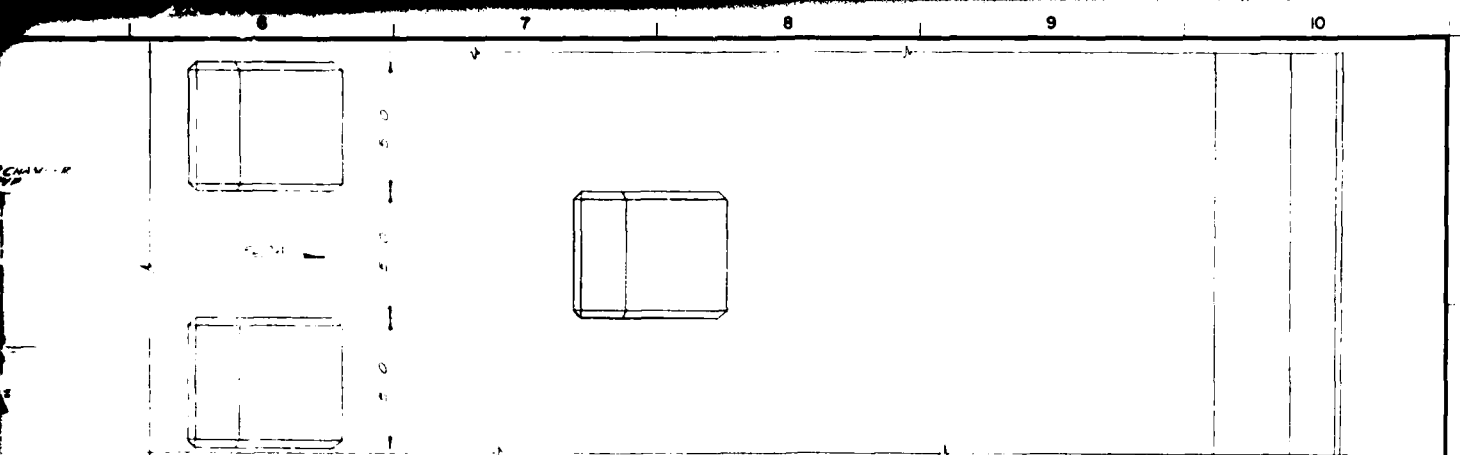
NOTES:

- 1 FOR GENERAL NOTES, SEE SEG 1
- 2 FOR WATERSTOP DETAILS SEE SEG 11
- 3 FOR CONTRACTION AND CONSTRUCTION JOINT DETAILS SEE SEG 51 & 52
- 4 FOR #14 BAR ANCHORS, THE PORTION OF THE BAR BEGINNING AT THE BOTTOM OF STRUCTURAL CONCRETE AND EXTENDING DOWNWARD A DEPTH OF 5'0" SHALL BE PAINTED WITH TWO COATS OF BITUMINOUS PAINT AND WRAPPED WITH TWO LAYERS OF IMPERMEABLE PAPER. SEE ANCHOR DETAIL, SEG 56
- 5 ANCHOR DEPTHS SHOWN ON THE DRAWING ARE MINIMUM DEPTHS. ACTUAL DEPTHS WILL BE DETERMINED BY PULL OUT TESTS. SEE SPECIFICATIONS.

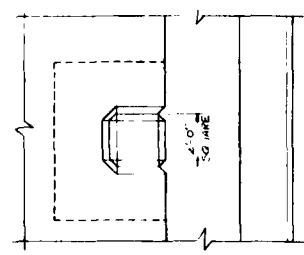
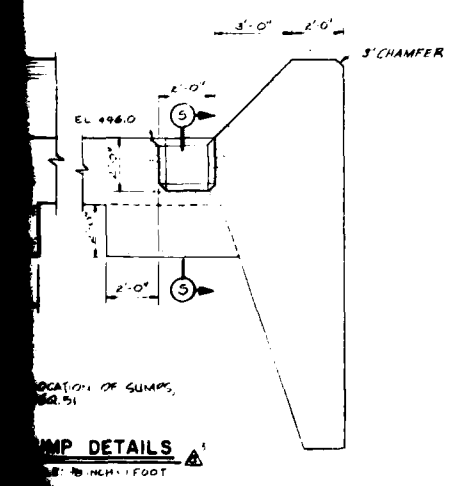


AS BUILT	CONSTRUCTION AS BUILT
58.00	76.00
CLARIFIED CALL-OUT.	
SECTIONS	SECTION 11
SECTION 11	SECTION 11
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS	
DESIGNED BY	GRANGER DAM AND LAKE SAN GABRIEL RIVER, TEXAS
DRAWN BY	SPILLWAY
CHECKED BY	SLAB SECTION A-A I CONCRETE
SUBMITTED BY	INSTR. NO. 100-100-100-100 DATED 11/1/50
ENGINEER	CONTR. NO. 53.70
	DRAWING NUMBER 53.70
	SHEET NO. 53





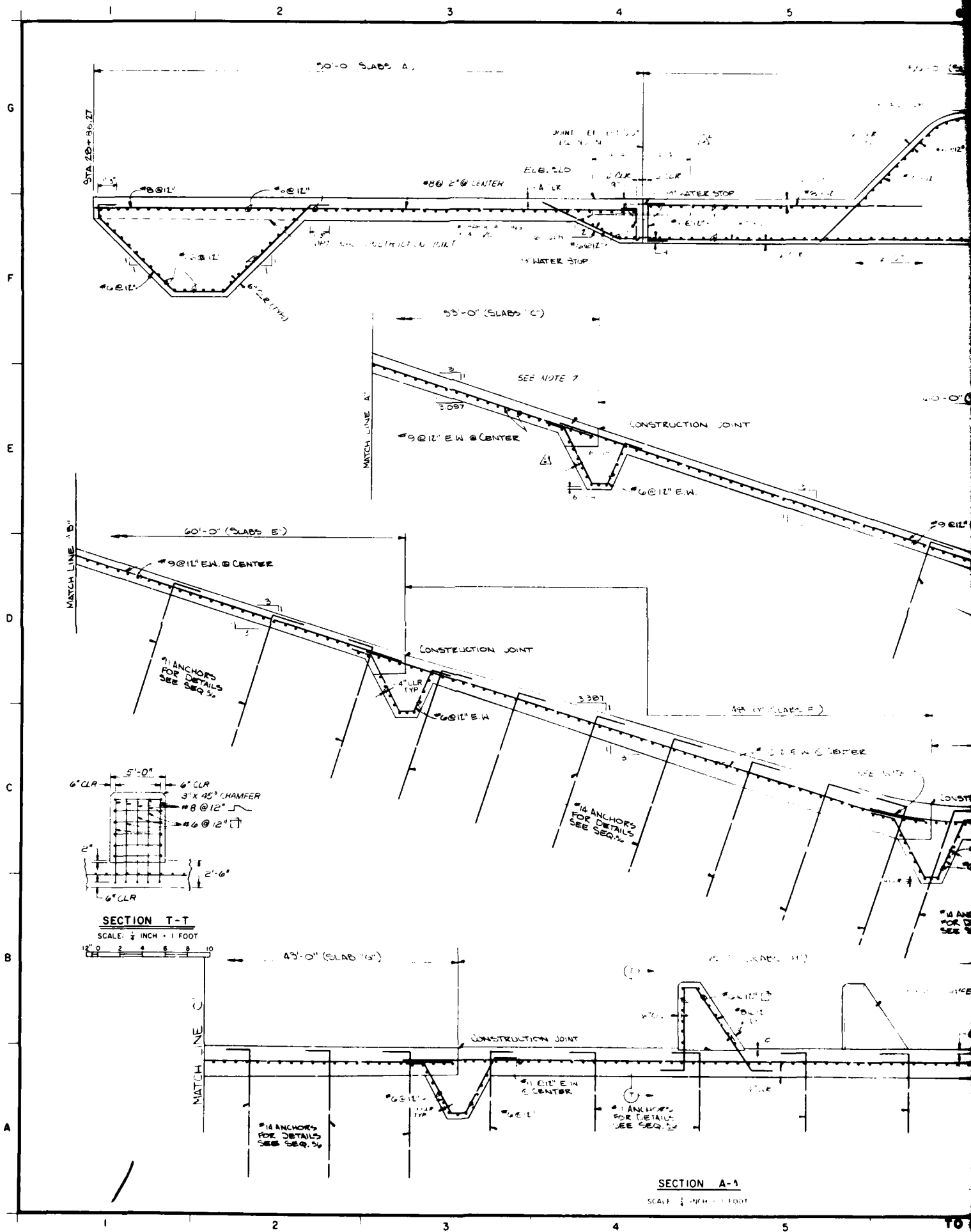
- NOTES:
1. FOR GENERAL NOTES SEE SEQ. 32
 2. FOR LOCATION OF ANCHORS SEE SEQ. 57
 3. FOR #11.4 SAF ANCHORS THE PORTION OF THE BAR BEGINNING AT THE BOTTOM OF STRUCTURAL CONCRETE AND EXTENDING DOWNWARD A DEPTH OF 5'-0" SHALL BE PAINTED WITH TWO COATS OF BITUMINOUS PAINT AND WRAPPED WITH B.T. MINOUS IMPREGNATED PAPER DEPTH. SEE ANCHOR DETAIL SEQ. 50.
 4. ANCHOR DEPTHS SHOWN ON THE DRAWING ARE MINIMUM DEPTHS. ACTUAL DEPTHS WILL BE DETERMINED BY PULL OUT TESTS. SEE SPECIFICATIONS.

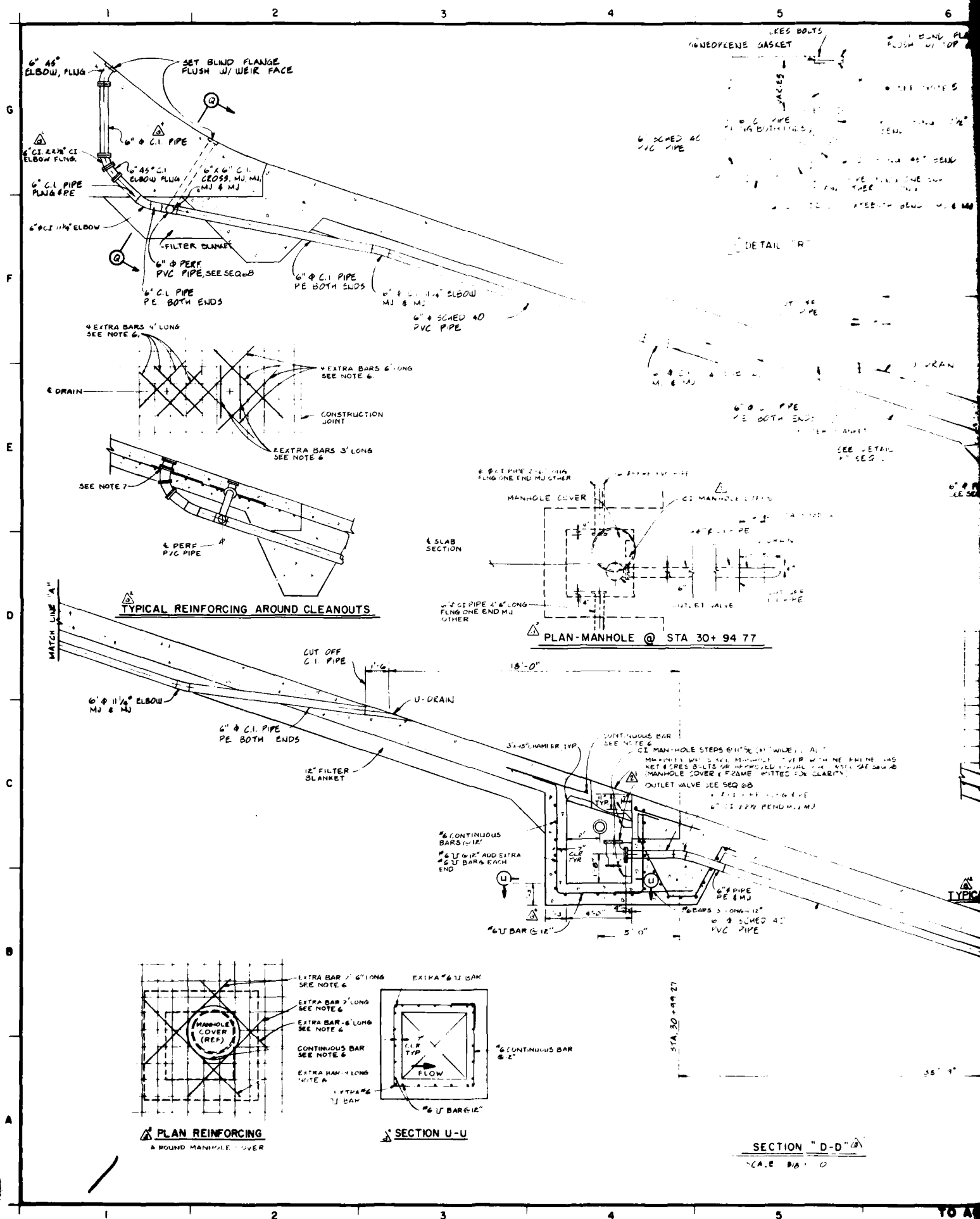


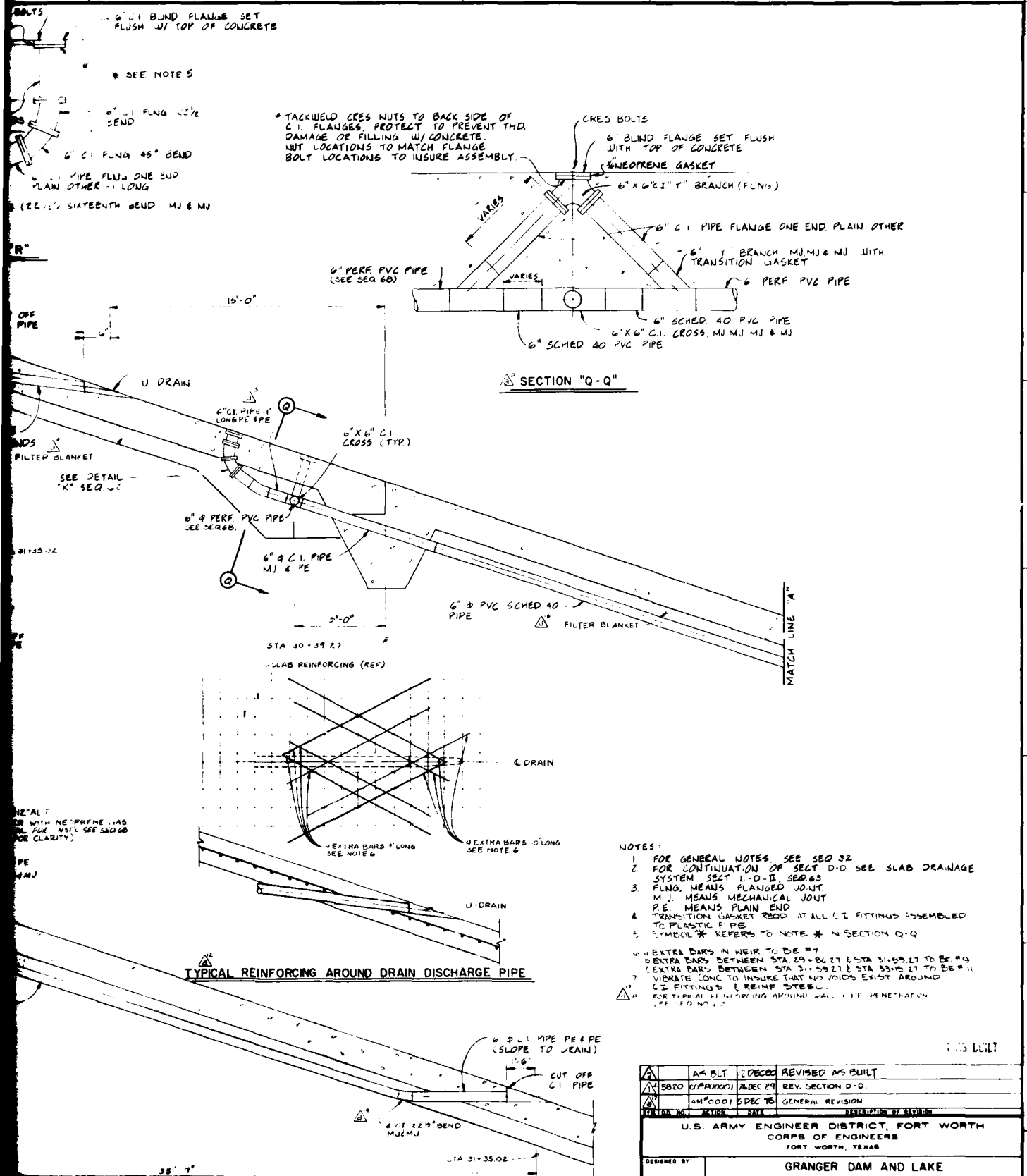
PLAN

2

AS-BLT	0 DEC 60	REVISED AS-BLT
WSE	1 MAR 77	REVISED SLL KEY
AMX	10 OCT 75	GENERAL REVISIONS
REVISION NO.	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS		
DESIGNED BY	GRANGER DAM AND LAKE SAN GABRIEL RIVER, TEXAS	
DRAWN BY	SPILLWAY	
CHECKED BY	SLAB SECTION A-A II CONCRETE	
SUBMITTED BY	INV. NO. DALW63-76-B-0012	DATED NOV. 1975
ENGINEER	CONTR. NO. 76-1-0057	SEQUENCE NO. 54
	DRAWING NUMBER	SHEET NO. 54 OF 57



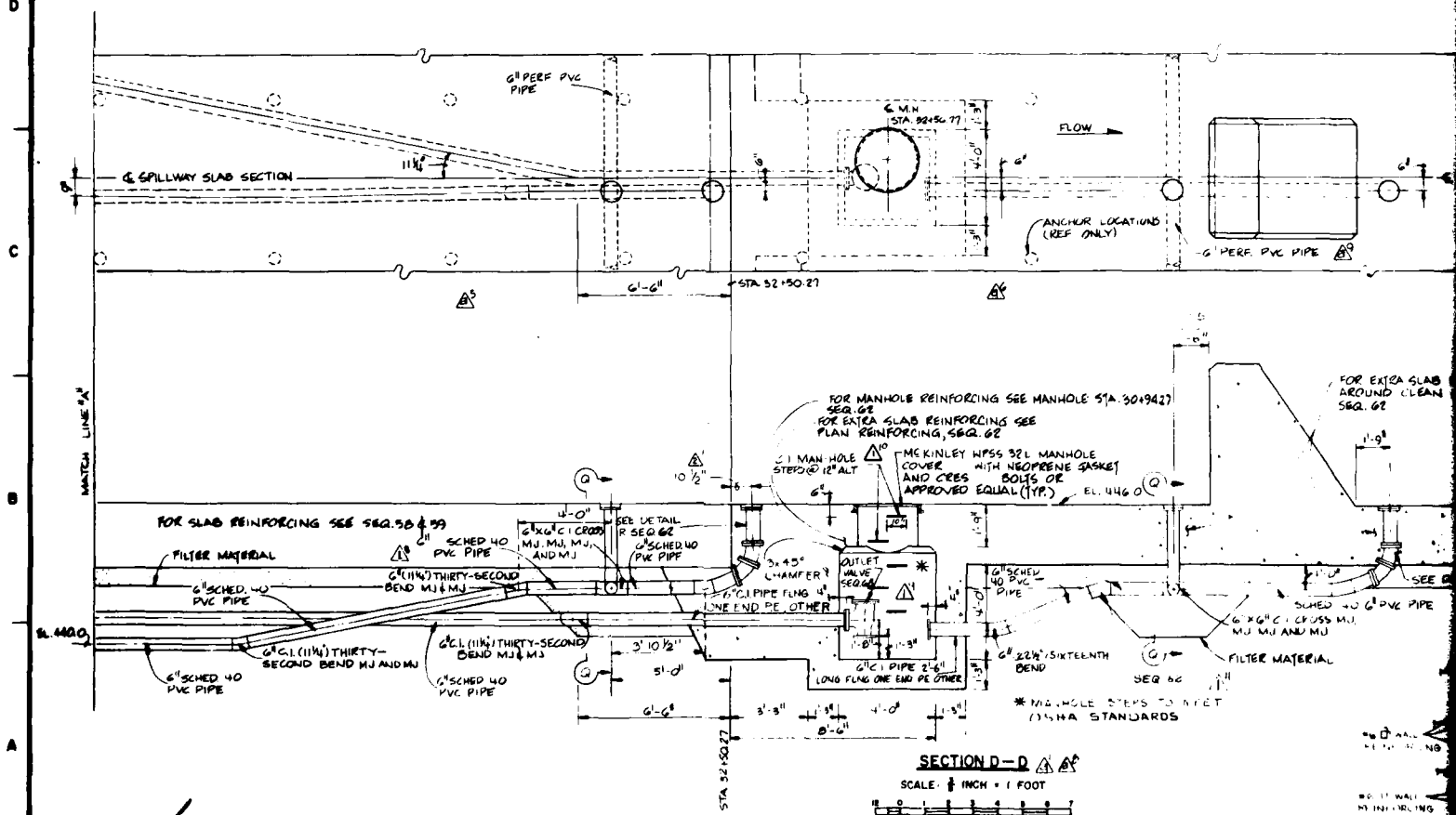




NOTES:

1. FOR GENERAL NOTES SEE SEQ 32
2. FOR CONTINUATION OF SECT D-D SEE SLAB DRAINAGE SYSTEM SECT I-D-II, SEQ 63
3. FLNG. MEANS FLANGED JOINT
M.J. MEANS MECHANICAL JOINT
P.E. MEANS PLAIN END
4. TRANSITION GASKET READ AT ALL C.I. FITTINGS ASSEMBLED TO PLASTIC PIPE
5. SYMBOL * REFERS TO NOTE * N SECTION Q-Q
6. EXTRA BARS IN WEIR TO BE #7
7. EXTRA BARS BETWEEN STA 29+84.17 & STA 31+59.17 TO BE #9
8. EXTRA BARS BETWEEN STA 31+59.17 & STA 33+56.17 TO BE #11
9. VIBRATE LONG TO INSURE THAT NO VOIDS EXIST AROUND C.I. FITTINGS & REIN. STEEL.
10. FOR TYPICAL REINFORCING AROUND WALL PIPE PENETRATION SEE D-D NO. 1

AS BUILT	DEC 29	REVISED AS BUILT
5820 (1/10/00)	DEC 29	REV. SECTION D-D
AM 0001	DEC 15	GENERAL REVISION
NO. 100	NO. 100	NO. 100
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS		
DESIGNED BY	GRANGER DAM AND LAKE SAN GABRIEL RIVER, TEXAS	
DRAWN BY	RAE	
CHECKED BY	GEY	
SUBMITTED BY	INV NO. DCMWS 76-D-001	DATED NOV. 1975
ENGINEER	CONTR. NO.	SHEET NO.
	DRAWING NUMBER	62.2.01
		62



1

3

4

5

6

G

F

E

D

C

B

A

TO ACCOMPANY FINAL

AD-A141 542

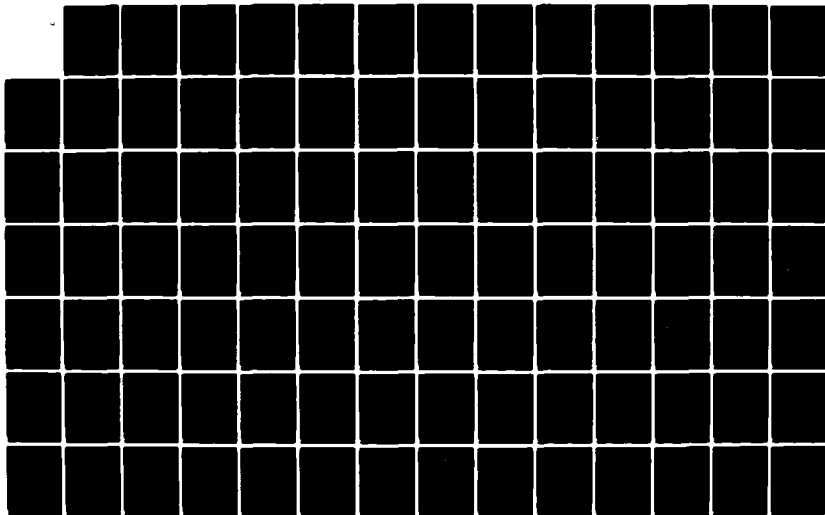
GRANGER LAKE EMBANKMENT-OUTLET WORKS-SPILLWAY VOLUME 2
(U) ARMY ENGINEER DISTRICT FORT WORTH TX G M RUEDE
AUG 83

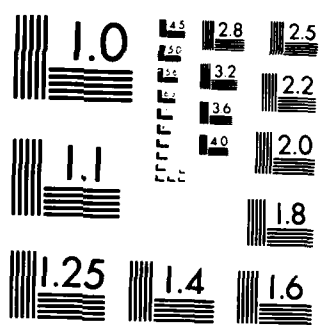
2/3

UNCLASSIFIED

F/G 13/13

NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

INDEX

SEC. NO.

TITLE

SEC. NO.	TITLE
1	DRAWING INDEX
1A	LOGS OF BORINGS - BDC 60 & BADC 60A
2	LOGS OF BORINGS - BADC 62
3	LOGS OF BORINGS - BADC 63 & BDC 66
4	LOGS OF BORINGS - BDC 66 & BDC 75
5	LOGS OF BORINGS - BADC 70 & BDC 71
6	LOGS OF BORINGS - BADC 73 & BDC 76
7	LOGS OF BORINGS - BADC 77 & BADC 79
8	LOGS OF BORINGS - BADC 79 & BADC 80
9	LOGS OF BORINGS - BADC 81 & BDC 92
10	LOGS OF BORINGS - BADC 83 & BADC 84
11	LOGS OF BORINGS - BADC 85 & BADC 90
12	LOGS OF BORINGS - BDC 86 & BDC 89
13	LOGS OF BORINGS - BDC 87 & BDC 88
14	LOGS OF BORINGS - BADC 91
15	LOGS OF BORINGS - BADC 92
16	LOGS OF BORINGS - BADC 93
17	LOGS OF BORINGS - BADC 94
18	LOGS OF BORINGS - BADC 95
19	LOGS OF BORINGS - BADC 96
20	LOGS OF BORINGS - BADC 97
21	LOGS OF BORINGS - BDC 98
22	LOGS OF BORINGS - BDC 100
23	LOGS OF BORINGS - BACF 469 & BACF 470
24	LOGS OF BORINGS - BACF 479, BACF 480 & BADC 485
25	LOGS OF BORINGS - BDC 484 & BDC 486
26	LOGS OF BORINGS - BADC 487 & BDC 507
27	LOGS OF BORINGS - BDC 508, BDC 510 & BADC 514
28	LOGS OF BORINGS - BDC 515
29	LOGS OF BORINGS - BDC 516
30	LOGS OF BORINGS - BADC 517 & BADC 518
31	LOGS OF BORINGS - BDC 519 & BADC 520
32	LOGS OF BORINGS - BDC 521 & BADC 522
33	LOGS OF BORINGS - BA 523, BA 524, BA 525 & BA 526
34	LOGS OF BORINGS - BA 527, BA 528, BA 529, BA 530 & BA 531
35	LOGS OF BORINGS - BA 532, BA 533, BA 534 & BA 535
36	LOGS OF BORINGS - BA 536, BA 537, BA 538, BA 539, BA 540, BA 541 & BA 542
37	LOGS OF BORINGS - BA 543 & BA 545
38	LOGS OF BORINGS - BADC 547
39	LOGS OF BORINGS - BADC 548 & BADC 549
40	LOGS OF BORINGS - BADC 550
41	LOGS OF BORINGS - BADC 551
42	LOGS OF BORINGS - BADC 3F 553
43	LOGS OF BORINGS - BADC 554
44	LOGS OF BORINGS - BADC 555
45	LOGS OF BORINGS - BADC 556
46	LOGS OF BORINGS - BDC 557 & BDC 558
47	LOGS OF BORINGS - BADC 3F 559
48	LOGS OF BORINGS - BADC 3F 560
49	LOGS OF BORINGS - BADC 3F 561
50	LOGS OF BORINGS - BADC 3F 562
51	LOGS OF BORINGS - BADC 3F 563
52	LOGS OF BORINGS - BADC 564 & BADC 565
53	LOGS OF BORINGS - BADC 566
54	LOGS OF BORINGS - BADC 567
55	LOGS OF BORINGS - BADC 568
56	LOGS OF BORINGS - BADC 569
57	LOGS OF BORINGS - BADC 570
58	LOGS OF BORINGS - BADC 571
59	LOGS OF BORINGS - BADC 572 & BADC 573
60	LOGS OF BORINGS - BADC 574
61	LOGS OF BORINGS - BADC 575 & BADC 576
62	LOGS OF BORINGS - BA 577 & BA 578
63	LOGS OF BORINGS - BA 579
64	LOGS OF BORINGS - BADC 580, BADC 580A, 580B & 580C
65	LOGS OF BORINGS - BADC 583 & BADC 584
66	LOGS OF BORINGS - BADC 585
67	LOGS OF BORINGS - BADC 586 & BADC 587
68	LOGS OF BORINGS - BA 588 & BA 589

NOV 0001 26 NOV 75 NEW SHEET ADDED	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS	
DESIGNED BY	GRANGER DAM AND LAKE SAN GABRIEL RIVER, TEXAS LOGS OF BORINGS DRAWING INDEX
DRAWN BY	
CHECKED BY	
SUBMITTED BY	
CONTR NO	INVT NO DDCG3-76-B-0012 DATED NOV 1975
DRAWING NUMBER	SHEET NO
ENGINEER	SEQUENCE NO

TO ACCOMPANY FINAL FOUNDATION REPORT PLATE 45

SHELLING LOG		Depth	Port north	Call 1
Lansburg - Upper site				
2.00-3.00 on S				
3.00-4.00 on S				
4.00-5.00 on S				
5.00-6.00 on S				
6.00-7.00 on S				
7.00-8.00 on S				
8.00-9.00 on S				
9.00-10.00 on S				
10.00-11.00 on S				
11.00-12.00 on S				
12.00-13.00 on S				
13.00-14.00 on S				
14.00-15.00 on S				
15.00-16.00 on S				
16.00-17.00 on S				
17.00-18.00 on S				
18.00-19.00 on S				
19.00-20.00 on S				
20.00-21.00 on S				
21.00-22.00 on S				
22.00-23.00 on S				
23.00-24.00 on S				
24.00-25.00 on S				
25.00-26.00 on S				
26.00-27.00 on S				
27.00-28.00 on S				
28.00-29.00 on S				
29.00-30.00 on S				
30.00-31.00 on S				
31.00-32.00 on S				
32.00-33.00 on S				
33.00-34.00 on S				
34.00-35.00 on S				
35.00-36.00 on S				
36.00-37.00 on S				
37.00-38.00 on S				
38.00-39.00 on S				
39.00-40.00 on S				
40.00-41.00 on S				
41.00-42.00 on S				
42.00-43.00 on S				
43.00-44.00 on S				
44.00-45.00 on S				
45.00-46.00 on S				
46.00-47.00 on S				
47.00-48.00 on S				
48.00-49.00 on S				
49.00-50.00 on S				
50.00-51.00 on S				
51.00-52.00 on S				
52.00-53.00 on S				
53.00-54.00 on S				
54.00-55.00 on S				
55.00-56.00 on S				
56.00-57.00 on S				
57.00-58.00 on S				
58.00-59.00 on S				
59.00-60.00 on S				
60.00-61.00 on S				
61.00-62.00 on S				
62.00-63.00 on S				
63.00-64.00 on S				
64.00-65.00 on S				
65.00-66.00 on S				
66.00-67.00 on S				
67.00-68.00 on S				
68.00-69.00 on S				
69.00-70.00 on S				
70.00-71.00 on S				
71.00-72.00 on S				
72.00-73.00 on S				
73.00-74.00 on S				
74.00-75.00 on S				
75.00-76.00 on S				
76.00-77.00 on S				
77.00-78.00 on S				
78.00-79.00 on S				
79.00-80.00 on S				
80.00-81.00 on S				
81.00-82.00 on S				
82.00-83.00 on S				
83.00-84.00 on S				
84.00-85.00 on S				
85.00-86.00 on S				
86.00-87.00 on S				
87.00-88.00 on S				
88.00-89.00 on S				
89.00-90.00 on S				
90.00-91.00 on S				
91.00-92.00 on S				
92.00-93.00 on S				
93.00-94.00 on S				
94.00-95.00 on S				
95.00-96.00 on S				
96.00-97.00 on S				
97.00-98.00 on S				
98.00-99.00 on S				
99.00-100.00 on S				

NOTE: (from 60. - T.D.
(26.1)) entire interval,
coral consisted of
closely spaced, low
angle, anagomariae; frac-
ture (suggestive of
cross-bedding), and brecciated zones. Since no
section of recovered corals
was more than 0.2' in
length, except for the
3 corals taken, representative samples for
testing purposes were
impossible to obtain.

48.0
Box
#5

52.8
Box
#6

56.5
Box
#7

60.5
Box
#8

CALCAREOUS SHALE
(28.3-73.8')

64.2
Box
#9

69.1
Box
#10

71.0' becoming more
gritty

Charton #3, 71.0-71.3'

71.5-76.1' - SANDY CLAY-
SILT, sandy, silty, cal-
careous, and hard, weakly
and cemented, and fossil-
iferous, fine textured
(gritty), solid (no rags),
gently dipping, highly
fractured, highly petroli-
ferous, dk gray w/brown
mat due to petroleum
staining

77.6
Box
#11

79.3
Box
#12

SANDY CLAY-SHALE
(76.1-81.1')

81.6
Box
#13

81.6
Box
#14

81.6
Box
#15

81.6
Box
#16

81.6
Box
#17

81.6
Box
#18

81.6
Box
#19

81.6
Box
#20

81.6
Box
#21

81.6
Box
#22

81.6
Box
#23

81.6
Box
#24

81.6
Box
#25

81.6
Box
#26

81.6
Box
#27

81.6
Box
#28

81.6
Box
#29

81.6
Box
#30

81.6
Box
#31

81.6
Box
#32

81.6
Box
#33

81.6
Box
#34

81.6
Box
#35

81.6
Box
#36

81.6
Box
#37

81.6
Box
#38

81.6
Box
#39

81.6
Box
#40

81.6
Box
#41

81.6
Box
#42

81.6
Box
#43

81.6
Box
#44

81.6
Box
#45

81.6
Box
#46

81.6
Box
#47

81.6
Box
#48

81.6
Box
#49

81.6
Box
#50

81.6
Box
#51

81.6
Box
#52

81.6
Box
#53

81.6
Box
#54

81.6
Box
#55

81.6
Box
#56

81.6
Box
#57

81.6
Box
#58

81.6
Box
#59

81.6
Box
#60

81.6
Box
#61

81.6
Box
#62

81.6
Box
#63

81.6
Box
#64

81.6
Box
#65

81.6
Box
#66

81.6
Box
#67

81.6
Box
#68

81.6
Box
#69

81.6
Box
#70

81.6
Box
#71

81.6
Box
#72

81.6
Box
#73

81.6
Box
#74

81.6
Box
#75

81.6
Box
#76

81.6
Box
#77

81.6
Box
#78

81.6
Box
#79

81.6
Box
#80

81.6
Box
#81

81.6
Box
#82

81.6
Box
#83

81.6
Box
#84

81.6
Box
#85

81.6
Box
#86

81.6
Box
#87

81.6
Box
#88

81.6
Box
#89

81.6
Box
#90

81.6
Box
#91

81.6
Box
#92

81.6
Box
#93

81.6
Box
#94

81.6
Box
#95

81.6
Box
#96

81.6
Box
#97

81.6
Box
#98

81.6
Box
#99

81.6
Box
#100

81.6
Box
#101

81.6
Box
#102

81.6
Box
#103

81.6
Box
#104

81.6
Box
#105

81.6
Box
#106

81.6
Box
#107

81.6
Box
#108

81.6
Box
#109

81.6
Box
#110

81.6
Box
#111

81.6
Box
#112

81.6
Box
#113

81.6
Box
#114

81.6
Box
#115

81.6
Box
#116

81.6
Box
#117

81.6
Box
#118

81.6
Box
#119

81.6
Box
#120

81.6
Box
#121

81.6
Box
#122

81.6
Box
#123

81.6
Box
#124

81.6
Box
#125

81.6
Box
#126

81.6
Box
#127

81.6
Box
#128

81.6
Box
#129

81.6
Box
#130

81.6
Box
#131

81.6
Box
#132

81.6
Box
#133

81.6
Box
#134

81.6
Box
#135

81.6
Box
#136

81.6
Box
#137

81.6
Box
#138

81.6
Box
#139

81.6
Box
#140

81.6
Box
#141

81.6
Box
#142

81.6
Box
#143

81.6
Box
#144

81.6
Box
#145

81.6
Box
#146

81.6
Box
#147

81.6
Box
#148

81.6
Box
#149

81.6
Box
#150

81.6
Box
#151

81.6
Box
#152

81.6
Box
#153

81.6
Box
#154

81.6
Box
#155

81.6
Box
#156

81.6
Box
#157

81.6
Box
#158

81.6
Box
#159

81.6
Box
#160

81.6
Box
#161

81.6
Box
#162

81.6
Box
#163

81.6
Box
#164

81.6
Box
#165

81.6
Box
#166

81.6
Box
#167

81.6
Box
#168

81.6
Box
#169

81.6
Box
#170

81.6
Box
#171

81.6
Box
#172

81.6
Box
#173

81.6
Box
#174

81.6
Box
#175

81.6
Box
#176

81.6
Box
#177

81.6
Box
#178

81.6
Box
#179

81.6
Box
#180

81.6
Box
#181

81.6
Box
#182

81.6
Box
#183

81.6
Box
#184

81.6
Box
#185

81.6
Box
#186

81.6
Box
#187

81.6
Box
#188

81.6
Box
#189

81.6
Box
#190

81.6
Box
#191

81.6
Box
#192

81.6
Box
#193

81.6
Box
#194

81.6
Box
#195

81.6
Box
#196

81.6
Box
#197

81.6
Box
#198

81.6
Box
#199

81.6
Box
#200

81.6
Box
#201

81.6
Box
#202

81.6
Box
#203

81.6
Box
#204

81.6
Box
#205

81.6
Box
#206

81.6
Box
#207

81.6
Box
#208

81.6
Box
#209

81.6
Box
#210

81.6
Box
#211

81.6
Box
#212

81.6
Box
#213

81.6
Box
#214

81.6
Box
#215

81.6
Box
#216

81.6
Box
#217

81.6
Box
#218

81.6
Box
#219</

[illegible]

TO ACCOMPANY FINAL

TO ACCOMPANY FINAL FOUNDATION REPORT

PLATE 46



10

“... 1990s”

100

Drilling Log		Port North	Notes
1. Drill Site 2. Drill Date 3. Drill No. 4. Drill Depth 5. Drill Diameter 6. Drill Type 7. Drill Operator 8. Drill Location 9. Drill Orientation 10. Drill Elevation	1. Drill Site 2. Drill Date 3. Drill No. 4. Drill Depth 5. Drill Diameter 6. Drill Type 7. Drill Operator 8. Drill Location 9. Drill Orientation 10. Drill Elevation	1. Drill Site 2. Drill Date 3. Drill No. 4. Drill Depth 5. Drill Diameter 6. Drill Type 7. Drill Operator 8. Drill Location 9. Drill Orientation 10. Drill Elevation	1. Drill Site 2. Drill Date 3. Drill No. 4. Drill Depth 5. Drill Diameter 6. Drill Type 7. Drill Operator 8. Drill Location 9. Drill Orientation 10. Drill Elevation
11. Drill Site 12. Drill Date 13. Drill No. 14. Drill Depth 15. Drill Diameter 16. Drill Type 17. Drill Operator 18. Drill Location 19. Drill Orientation 20. Drill Elevation	11. Drill Site 12. Drill Date 13. Drill No. 14. Drill Depth 15. Drill Diameter 16. Drill Type 17. Drill Operator 18. Drill Location 19. Drill Orientation 20. Drill Elevation	11. Drill Site 12. Drill Date 13. Drill No. 14. Drill Depth 15. Drill Diameter 16. Drill Type 17. Drill Operator 18. Drill Location 19. Drill Orientation 20. Drill Elevation	11. Drill Site 12. Drill Date 13. Drill No. 14. Drill Depth 15. Drill Diameter 16. Drill Type 17. Drill Operator 18. Drill Location 19. Drill Orientation 20. Drill Elevation

42.0	41.3	Carton #6, 42.0-42.9
44.0	46.3	Carton #7, 50.5-51.4
46.0	46.3	Carton #8, 54.6-55.5
48.0	46.8	Carton #9, 54.6-55.5
50.0	46.8	Carton #10, 54.6-55.5
52.0	46.8	Carton #11, 54.6-55.5
54.0	46.8	Carton #12, 54.6-55.5
56.0	46.8	Carton #13, 54.6-55.5
58.0	46.8	Carton #14, 54.6-55.5
60.0	46.8	Carton #15, 54.6-55.5
62.0	46.8	Carton #16, 54.6-55.5
64.0	46.8	Carton #17, 54.6-55.5
66.0	46.8	Carton #18, 54.6-55.5
68.0	46.8	Carton #19, 54.6-55.5
70.0	46.8	Carton #20, 54.6-55.5
72.0	46.8	Carton #21, 54.6-55.5
74.0	46.8	Carton #22, 54.6-55.5
76.0	46.8	Carton #23, 54.6-55.5
78.0	46.8	Carton #24, 54.6-55.5
80.0	46.8	Carton #25, 54.6-55.5
82.0	46.8	Carton #26, 54.6-55.5
84.0	46.8	Carton #27, 54.6-55.5
86.0	46.8	Carton #28, 54.6-55.5
88.0	46.8	Carton #29, 54.6-55.5
90.0	46.8	Carton #30, 54.6-55.5
92.0	46.8	Carton #31, 54.6-55.5
94.0	46.8	Carton #32, 54.6-55.5
96.0	46.8	Carton #33, 54.6-55.5
98.0	46.8	Carton #34, 54.6-55.5
100.0	46.8	Carton #35, 54.6-55.5

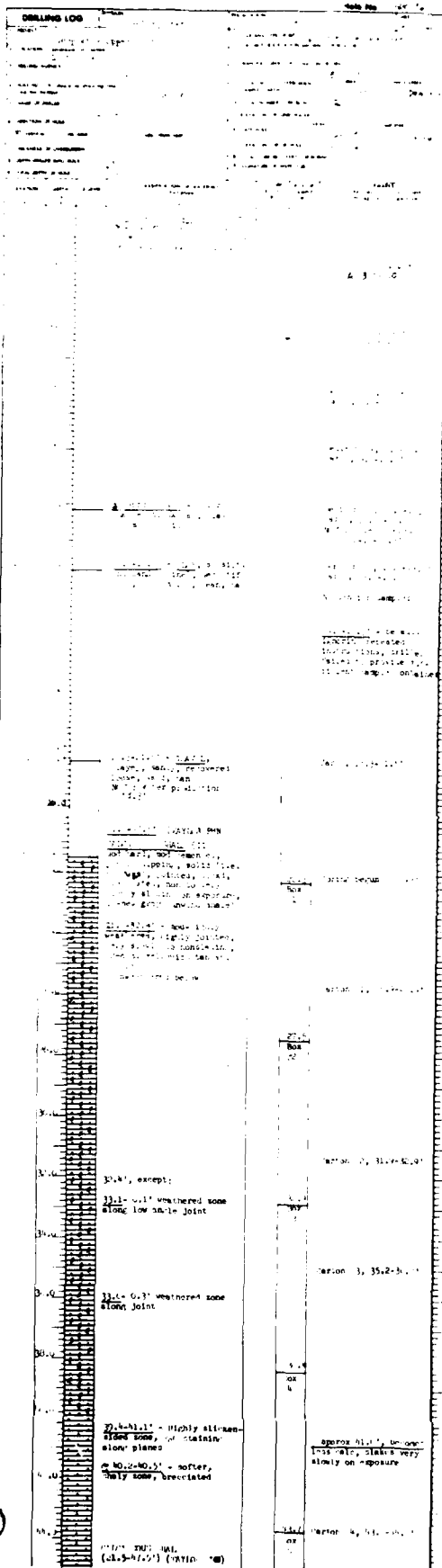
TO ACCOMPANY FINAL FOUND

Drilling Log		Geological		Depth		Remarks	
Project		Location		Date		Time	
Lansport (Upper site)		Port North		6 Dec 68		Cure	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	
T-30, 127		T-30, 127		T-30, 127		T-30, 127	

Core No.	Depth (ft)	Description	Remarks
50.7	50.2	Dark gray. Becomes considerably less calcareous. After tests only, after then unit shale above. Blasted slowly upon exposure	50.2
50.7	50.2		Section #6, 45.0-45.9
50.7	50.2		Section #7, 50.0-50.9
50.7	50.2		Section #8, 55.0-55.9
50.7	50.2		Section #9, 60.0-60.9
50.7	50.2		Section #10, 65.0-65.9
50.7	50.2		Section #11, 70.0-70.9
50.7	50.2		Section #12, 75.0-75.9
50.7	50.2		Section #13, 80.0-80.9
50.7	50.2		Section #14, 85.0-85.9
50.7	50.2		Section #15, 90.0-90.9
50.7	50.2		Section #16, 95.0-95.9
50.7	50.2		Section #17, 100.0-100.9
50.7	50.2		Section #18, 105.0-105.9
50.7	50.2		Section #19, 110.0-110.9
50.7	50.2		Section #20, 115.0-115.9
50.7	50.2		Section #21, 120.0-120.9
50.7	50.2		Section #22, 125.0-125.9
50.7	50.2		Section #23, 130.0-130.9
50.7	50.2		Section #24, 135.0-135.9
50.7	50.2		Section #25, 140.0-140.9
50.7	50.2		Section #26, 145.0-145.9
50.7	50.2		Section #27, 150.0-150.9
50.7	50.2		Section #28, 155.0-155.9
50.7	50.2		Section #29, 160.0-160.9
50.7	50.2		Section #30, 165.0-165.9
50.7	50.2		Section #31, 170.0-170.9
50.7	50.2		Section #32, 175.0-175.9
50.7	50.2		Section #33, 180.0-180.9
50.7	50.2		Section #34, 185.0-185.9
50.7	50.2		Section #35, 190.0-190.9
50.7	50.2		Section #36, 195.0-195.9
50.7	50.2		Section #37, 200.0-200.9
50.7	50.2		Section #38, 205.0-205.9
50.7	50.2		Section #39, 210.0-210.9
50.7	50.2		Section #40, 215.0-215.9
50.7	50.2		Section #41, 220.0-220.9
50.7	50.2		Section #42, 225.0-225.9
50.7	50.2		Section #43, 230.0-230.9
50.7	50.2		Section #44, 235.0-235.9
50.7	50.2		Section #45, 240.0-240.9
50.7	50.2		Section #46, 245.0-245.9
50.7	50.2		Section #47, 250.0-250.9
50.7	50.2		Section #48, 255.0-255.9
50.7	50.2		Section #49, 260.0-260.9
50.7	50.2		Section #50, 265.0-265.9
50.7	50.2		Section #51, 270.0-270.9
50.7	50.2		Section #52, 275.0-275.9
50.7	50.2		Section #53, 280.0-280.9
50.7	50.2		Section #54, 285.0-285.9
50.7	50.2		Section #55, 290.0-290.9
50.7	50.2		Section #56, 295.0-295.9
50.7	50.2		Section #57, 300.0-300.9
50.7	50.2		Section #58, 305.0-305.9
50.7	50.2		Section #59, 310.0-310.9
50.7	50.2		Section #60, 315.0-315.9
50.7	50.2		Section #61, 320.0-320.9
50.7	50.2		Section #62, 325.0-325.9
50.7	50.2		Section #63, 330.0-330.9
50.7	50.2		Section #64, 335.0-335.9
50.7	50.2		Section #65, 340.0-340.9
50.7	50.2		Section #66, 345.0-345.9
50.7	50.2		Section #67, 350.0-350.9
50.7	50.2		Section #68, 355.0-355.9
50.7	50.2		Section #69, 360.0-360.9
50.7	50.2		Section #70, 365.0-365.9
50.7	50.2		Section #71, 370.0-370.9
50.7	50.2		Section #72, 375.0-375.9
50.7	50.2		Section #73, 380.0-380.9
50.7	50.2		Section #74, 385.0-385.9
50.7	50.2		Section #75, 390.0-390.9
50.7	50.2		Section #76, 395.0-395.9
50.7	50.2		Section #77, 400.0-400.9
50.7	50.2		Section #78, 405.

[illegible]

TO ACCOMPANY FINAL



U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
DESIGNED BY: JLM	LANEPORT LAKE SAN GABRIEL RIVER, TEXAS		
DRAWN BY: JLM	LOGS OF BORINGS 8A6C-73 & 6DC-76 VOLUME - II		
CHECKED BY: JLM			
SUBMITTED BY: JLM	INVESTIGATION NO. 8A6C-73 & 6DC-76		
ENGINEER: JLM	SPECIFICATIONS DATED: 6 OF 68		SEQUENCE NO. 6

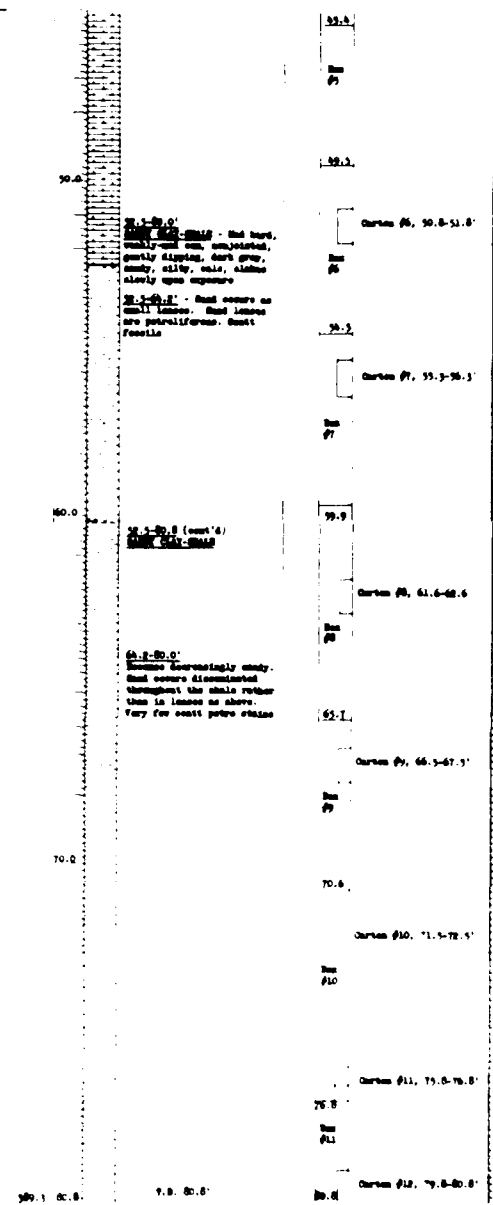
Well Log		Well No. 8460-78	
Section	Remarks	Part Depth	Log
Section 1 (Lower 100')		100'	100'
Section 2 (Upper 100')		100'	100'
Section 3 (Lower 100')		100'	100'
Section 4 (Upper 100')		100'	100'
Section 5 (Lower 100')		100'	100'
Section 6 (Upper 100')		100'	100'
Section 7 (Lower 100')		100'	100'
Section 8 (Upper 100')		100'	100'
Section 9 (Lower 100')		100'	100'
Section 10 (Upper 100')		100'	100'
Section 11 (Lower 100')		100'	100'
Section 12 (Upper 100')		100'	100'
Section 13 (Lower 100')		100'	100'
Section 14 (Upper 100')		100'	100'
Section 15 (Lower 100')		100'	100'
Section 16 (Upper 100')		100'	100'
Section 17 (Lower 100')		100'	100'
Section 18 (Upper 100')		100'	100'
Section 19 (Lower 100')		100'	100'
Section 20 (Upper 100')		100'	100'
Section 21 (Lower 100')		100'	100'
Section 22 (Upper 100')		100'	100'
Section 23 (Lower 100')		100'	100'
Section 24 (Upper 100')		100'	100'
Section 25 (Lower 100')		100'	100'
Section 26 (Upper 100')		100'	100'
Section 27 (Lower 100')		100'	100'
Section 28 (Upper 100')		100'	100'
Section 29 (Lower 100')		100'	100'
Section 30 (Upper 100')		100'	100'
Section 31 (Lower 100')		100'	100'
Section 32 (Upper 100')		100'	100'
Section 33 (Lower 100')		100'	100'
Section 34 (Upper 100')		100'	100'
Section 35 (Lower 100')		100'	100'
Section 36 (Upper 100')		100'	100'
Section 37 (Lower 100')		100'	100'
Section 38 (Upper 100')		100'	100'
Section 39 (Lower 100')		100'	100'
Section 40 (Upper 100')		100'	100'
Section 41 (Lower 100')		100'	100'
Section 42 (Upper 100')		100'	100'
Section 43 (Lower 100')		100'	100'
Section 44 (Upper 100')		100'	100'
Section 45 (Lower 100')		100'	100'
Section 46 (Upper 100')		100'	100'
Section 47 (Lower 100')		100'	100'
Section 48 (Upper 100')		100'	100'
Section 49 (Lower 100')		100'	100'
Section 50 (Upper 100')		100'	100'
Section 51 (Lower 100')		100'	100'
Section 52 (Upper 100')		100'	100'
Section 53 (Lower 100')		100'	100'
Section 54 (Upper 100')		100'	100'
Section 55 (Lower 100')		100'	100'
Section 56 (Upper 100')		100'	100'
Section 57 (Lower 100')		100'	100'
Section 58 (Upper 100')		100'	100'
Section 59 (Lower 100')		100'	100'
Section 60 (Upper 100')		100'	100'
Section 61 (Lower 100')		100'	100'
Section 62 (Upper 100')		100'	100'
Section 63 (Lower 100')		100'	100'
Section 64 (Upper 100')		100'	100'
Section 65 (Lower 100')		100'	100'
Section 66 (Upper 100')		100'	100'
Section 67 (Lower 100')		100'	100'
Section 68 (Upper 100')		100'	100'
Section 69 (Lower 100')		100'	100'
Section 70 (Upper 100')		100'	100'
Section 71 (Lower 100')		100'	100'
Section 72 (Upper 100')		100'	100'
Section 73 (Lower 100')		100'	100'
Section 74 (Upper 100')		100'	100'
Section 75 (Lower 100')		100'	100'
Section 76 (Upper 100')		100'	100'
Section 77 (Lower 100')		100'	100'
Section 78 (Upper 100')		100'	100'
Section 79 (Lower 100')		100'	100'
Section 80 (Upper 100')		100'	100'
Section 81 (Lower 100')		100'	100'
Section 82 (Upper 100')		100'	100'
Section 83 (Lower 100')		100'	100'
Section 84 (Upper 100')		100'	100'
Section 85 (Lower 100')		100'	100'
Section 86 (Upper 100')		100'	100'
Section 87 (Lower 100')		100'	100'
Section 88 (Upper 100')		100'	100'
Section 89 (Lower 100')		100'	100'
Section 90 (Upper 100')		100'	100'
Section 91 (Lower 100')		100'	100'
Section 92 (Upper 100')		100'	100'
Section 93 (Lower 100')		100'	100'
Section 94 (Upper 100')		100'	100'
Section 95 (Lower 100')		100'	100'
Section 96 (Upper 100')		100'	100'
Section 97 (Lower 100')		100'	100'
Section 98 (Upper 100')		100'	100'
Section 99 (Lower 100')		100'	100'
Section 100 (Upper 100')		100'	100'

40.0'	Calcareous shale (II) (18.5'-45.7') (Section 100)	40.0'	Curves 80, 40.0'-41.7'
42.0'	42.0' - becomes less calc. shales more readily on exposure	42.0'	NOTE: 45.7'-55.4'
44.0'	44.0' - hard, strongly concreted, whitish gray, lime con.	44.0'	SHALE III contains thin brown fine sand lenses from which petroleum effluvia.
46.0'	46.0' - 47.7' (Section 100)	46.0'	Curves 89, 46.3'-47.3'
48.0'	48.0' - 49.7' (Section 100)	48.0'	
50.0'	50.0' - 51.7' (Section 100)	50.0'	
52.0'	52.0' - 53.7' (Section 100)	52.0'	
54.0'	54.0' - 55.7' (Section 100)	54.0'	
56.0'	56.0' - 57.7' (Section 100)	56.0'	
58.0'	58.0' - 59.7' (Section 100)	58.0'	
60.0'	60.0' - 61.7' (Section 100)	60.0'	
62.0'	62.0' - 63.7' (Section 100)	62.0'	
64.0'	64.0' - 65.7' (Section 100)	64.0'	
66.0'	66.0' - 67.7' (Section 100)	66.0'	
68.0'	68.0' - 69.7' (Section 100)	68.0'	
70.0'	70.0' - 71.7' (Section 100)	70.0'	
72.0'	72.0' - 73.7' (Section 100)	72.0'	
74.0'	74.0' - 75.7' (Section 100)	74.0'	
76.0'	76.0' - 77.7' (Section 100)	76.0'	
78.0'	78.0' - 79.7' (Section 100)	78.0'	
80.0'	80.0' - 81.7' (Section 100)	80.0'	
82.0'	82.0' - 83.7' (Section 100)	82.0'	
84.0'	84.0' - 85.7' (Section 100)	84.0'	
86.0'	86.0' - 87.7' (Section 100)	86.0'	
88.0'	88.0' - 89.7' (Section 100)	88.0'	
90.0'	90.0' - 91.7' (Section 100)	90.0'	
92.0'	92.0' - 93.7' (Section 100)	92.0'	
94.0'	94.0' - 95.7' (Section 100)	94.0'	
96.0'	96.0' - 97.7' (Section 100)	96.0'	
98.0'	98.0' - 99.7' (Section 100)	98.0'	
100.0'	100.0' - 101.7' (Section 100)	100.0'	

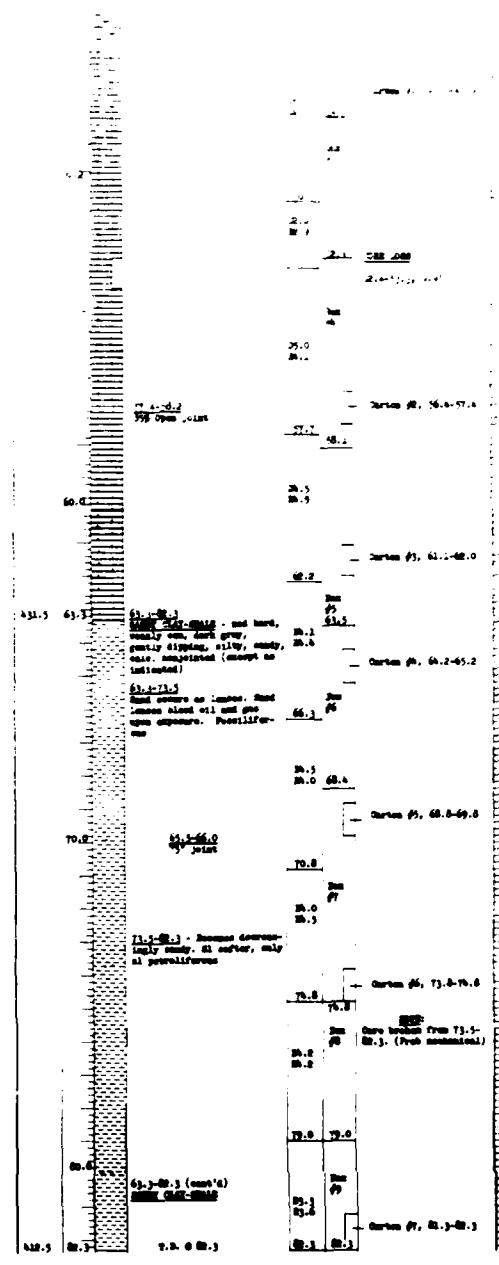
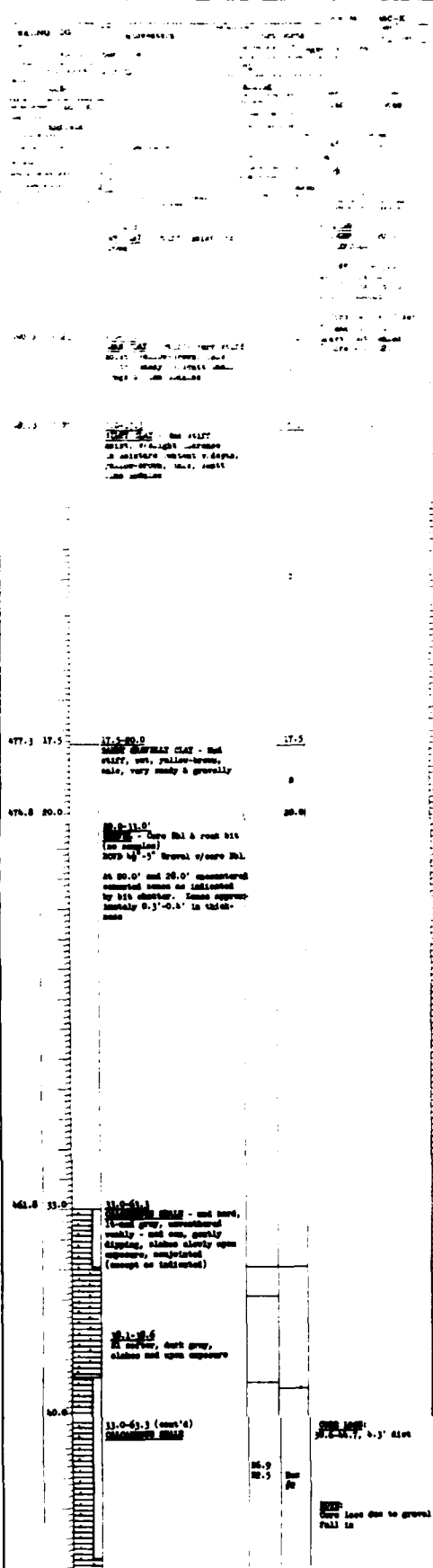
TO ACCOMPANY FINAL FOUR

DEPTH	LOG	DESCRIPTION	TEST DATA
1.0	1.0	1.0	1.0
2.0	2.0	2.0	2.0
3.0	3.0	3.0	3.0
4.0	4.0	4.0	4.0
5.0	5.0	5.0	5.0
6.0	6.0	6.0	6.0
7.0	7.0	7.0	7.0
8.0	8.0	8.0	8.0
9.0	9.0	9.0	9.0
10.0	10.0	10.0	10.0

11.0	11.0	11.0	11.0
12.0	12.0	12.0	12.0
13.0	13.0	13.0	13.0
14.0	14.0	14.0	14.0
15.0	15.0	15.0	15.0
16.0	16.0	16.0	16.0
17.0	17.0	17.0	17.0
18.0	18.0	18.0	18.0
19.0	19.0	19.0	19.0
20.0	20.0	20.0	20.0
21.0	21.0	21.0	21.0
22.0	22.0	22.0	22.0
23.0	23.0	23.0	23.0
24.0	24.0	24.0	24.0
25.0	25.0	25.0	25.0
26.0	26.0	26.0	26.0
27.0	27.0	27.0	27.0
28.0	28.0	28.0	28.0
29.0	29.0	29.0	29.0
30.0	30.0	30.0	30.0
31.0	31.0	31.0	31.0
32.0	32.0	32.0	32.0
33.0	33.0	33.0	33.0
34.0	34.0	34.0	34.0
35.0	35.0	35.0	35.0
36.0	36.0	36.0	36.0
37.0	37.0	37.0	37.0
38.0	38.0	38.0	38.0
39.0	39.0	39.0	39.0
40.0	40.0	40.0	40.0
41.0	41.0	41.0	41.0
42.0	42.0	42.0	42.0
43.0	43.0	43.0	43.0
44.0	44.0	44.0	44.0
45.0	45.0	45.0	45.0
46.0	46.0	46.0	46.0
47.0	47.0	47.0	47.0
48.0	48.0	48.0	48.0
49.0	49.0	49.0	49.0
50.0	50.0	50.0	50.0
51.0	51.0	51.0	51.0
52.0	52.0	52.0	52.0
53.0	53.0	53.0	53.0
54.0	54.0	54.0	54.0
55.0	55.0	55.0	55.0
56.0	56.0	56.0	56.0
57.0	57.0	57.0	57.0
58.0	58.0	58.0	58.0
59.0	59.0	59.0	59.0
60.0	60.0	60.0	60.0
61.0	61.0	61.0	61.0
62.0	62.0	62.0	62.0
63.0	63.0	63.0	63.0
64.0	64.0	64.0	64.0
65.0	65.0	65.0	65.0
66.0	66.0	66.0	66.0
67.0	67.0	67.0	67.0
68.0	68.0	68.0	68.0
69.0	69.0	69.0	69.0
70.0	70.0	70.0	70.0
71.0	71.0	71.0	71.0
72.0	72.0	72.0	72.0
73.0	73.0	73.0	73.0
74.0	74.0	74.0	74.0
75.0	75.0	75.0	75.0
76.0	76.0	76.0	76.0
77.0	77.0	77.0	77.0
78.0	78.0	78.0	78.0
79.0	79.0	79.0	79.0
80.0	80.0	80.0	80.0
81.0	81.0	81.0	81.0
82.0	82.0	82.0	82.0
83.0	83.0	83.0	83.0
84.0	84.0	84.0	84.0
85.0	85.0	85.0	85.0
86.0	86.0	86.0	86.0
87.0	87.0	87.0	87.0
88.0	88.0	88.0	88.0
89.0	89.0	89.0	89.0
90.0	90.0	90.0	90.0
91.0	91.0	91.0	91.0
92.0	92.0	92.0	92.0
93.0	93.0	93.0	93.0
94.0	94.0	94.0	94.0
95.0	95.0	95.0	95.0
96.0	96.0	96.0	96.0
97.0	97.0	97.0	97.0
98.0	98.0	98.0	98.0
99.0	99.0	99.0	99.0
100.0	100.0	100.0	100.0



1. PROJECT NAME
 2. PROJECT NUMBER
 3. PROJECT LOCATION
 4. PROJECT DATE
 5. PROJECT STATUS
 6. PROJECT DESCRIPTION
 7. PROJECT OBJECTIVES
 8. PROJECT RESULTS
 9. PROJECT CONCLUSIONS
 10. PROJECT RECOMMENDATIONS



TO ACCOMPANY FINAL FOUNDAT

Station	Depth	Remarks
1	0.0	Surface
2	1.0	...
3	2.0	...
4	3.0	...
5	4.0	...
6	5.0	...
7	6.0	...
8	7.0	...
9	8.0	...
10	9.0	...
11	10.0	...
12	11.0	...
13	12.0	...
14	13.0	...
15	14.0	...
16	15.0	...
17	16.0	...
18	17.0	...
19	18.0	...
20	19.0	...
21	20.0	...
22	21.0	...
23	22.0	...
24	23.0	...
25	24.0	...
26	25.0	...
27	26.0	...
28	27.0	...
29	28.0	...
30	29.0	...
31	30.0	...
32	31.0	...
33	32.0	...
34	33.0	...
35	34.0	...
36	35.0	...
37	36.0	...
38	37.0	...
39	38.0	...
40	39.0	...
41	40.0	...
42	41.0	...
43	42.0	...
44	43.0	...
45	44.0	...
46	45.0	...
47	46.0	...
48	47.0	...
49	48.0	...
50	49.0	...
51	50.0	...
52	51.0	...
53	52.0	...
54	53.0	...
55	54.0	...
56	55.0	...
57	56.0	...
58	57.0	...
59	58.0	...
60	59.0	...
61	60.0	...
62	61.0	...
63	62.0	...
64	63.0	...
65	64.0	...
66	65.0	...
67	66.0	...
68	67.0	...
69	68.0	...
70	69.0	...
71	70.0	...
72	71.0	...
73	72.0	...
74	73.0	...
75	74.0	...
76	75.0	...
77	76.0	...
78	77.0	...
79	78.0	...
80	79.0	...
81	80.0	...
82	81.0	...
83	82.0	...
84	83.0	...
85	84.0	...
86	85.0	...
87	86.0	...
88	87.0	...
89	88.0	...
90	89.0	...
91	90.0	...
92	91.0	...
93	92.0	...
94	93.0	...
95	94.0	...
96	95.0	...
97	96.0	...
98	97.0	...
99	98.0	...
100	99.0	...



Station 63, 61.0-62.0

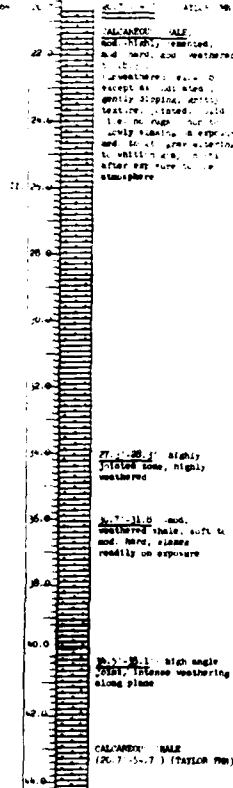
Station 64, 64.0-65.0

Station 65, 68.0-69.0

Station 66, 73.0-74.0

Core taken from 73.0-74.0 (from station 66)

Station 67, 81.0-82.0



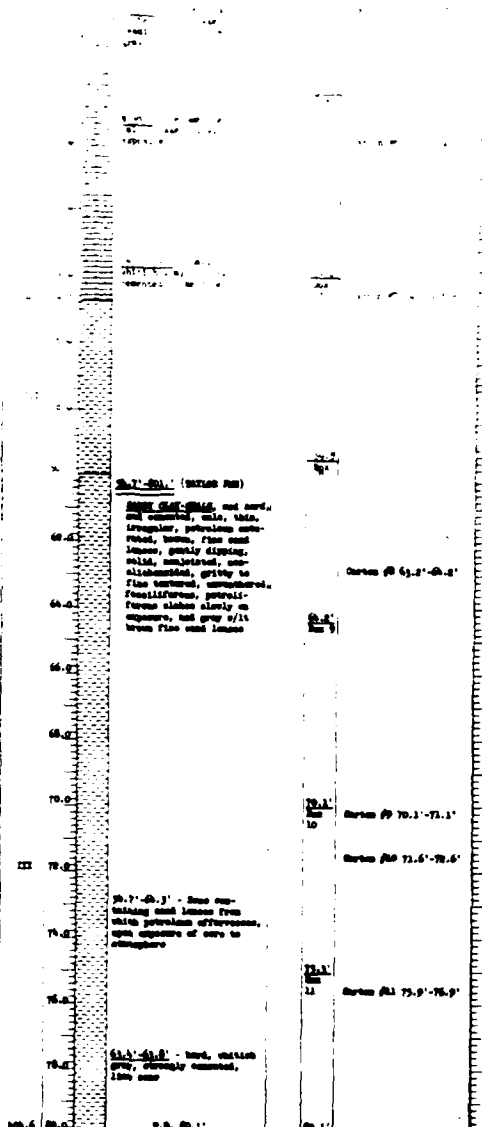
Station 69, 82.0-83.0

Station 70, 83.0-84.0

Station 71, 84.0-85.0

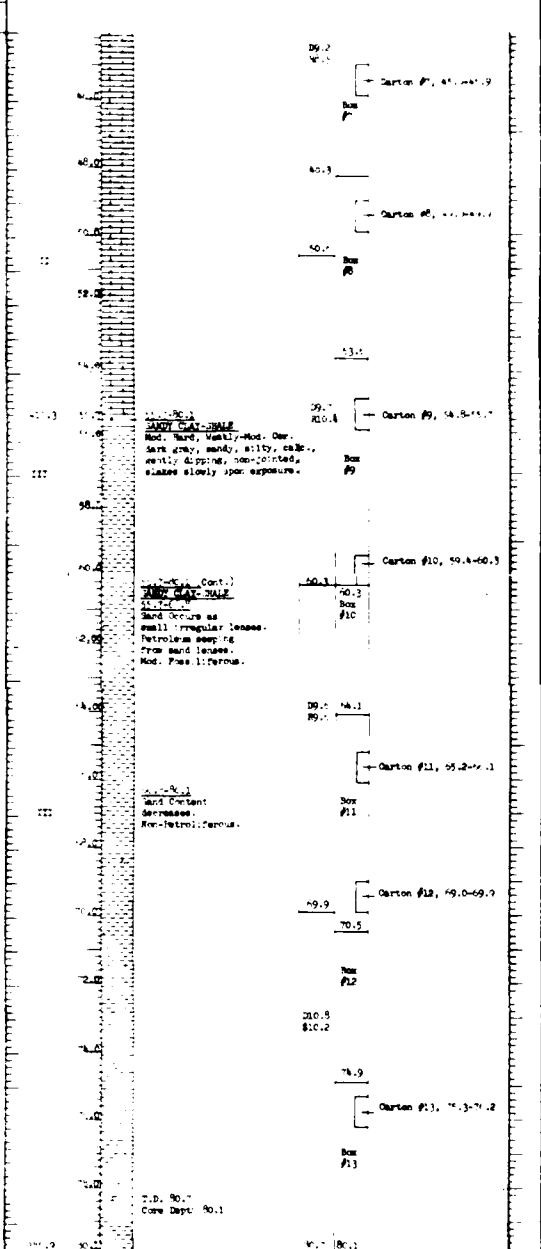
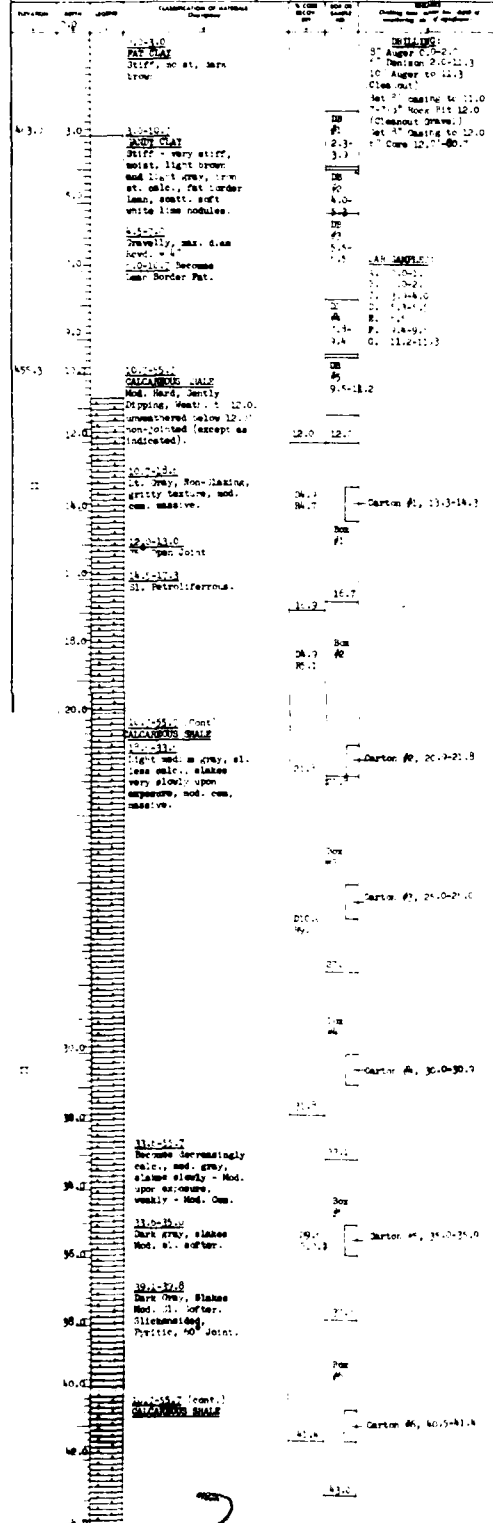
Station 72, 85.0-86.0

Station 73, 86.0-87.0



U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
DESIGNED BY	LANEPORT LAKE SAN GABRIEL RIVER, TEXAS		
DRAWN BY	LOGS OF BORINGS 8A6C-79 & 8A6C-80		
CHECKED BY	VOLUME - II		
SUBMITTED BY	INVESTIGATION NO.	EXPLANATIONS DATED	SEQUENCE NO.
ENGINEER	DRAWING NUMBER	SHEET NO.	8

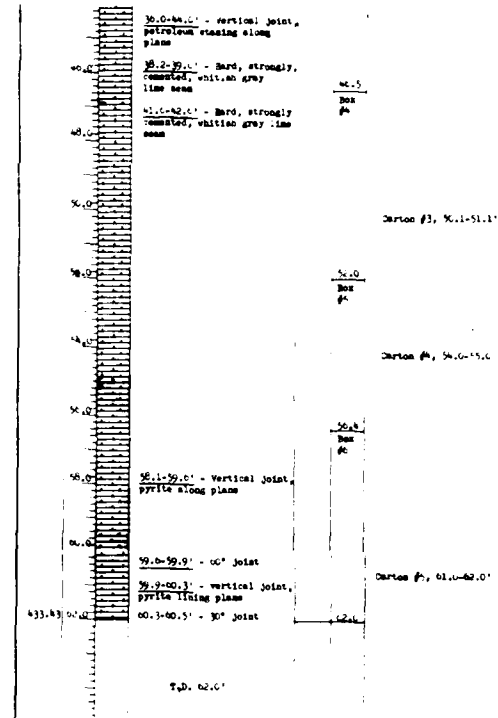
Borehole Log		Location	
Well: Laneport (Upper) (Site) Well No.: 8A-6C-81 & 6DC-82 Well Depth: 100.0 Well Diameter: 10.0 Well Material: 10.0 Well Construction: 10.0 Well Completion: 10.0 Well Status: 10.0		Location: Port North District Section: 10.0 Block: 10.0 Township: 10.0 Range: 10.0 County: 10.0	



U.S. Army Engineer District, Fort Worth	
Design: Laneport Lake Location: Fort Worth, Texas Logs of Borings: 8A6C-81 & 6DC-82 Volume: II	
Designed by: Drawn by: Checked by: Submitted by:	Engineer: Scale: Sheet No.: 9

Depth (ft.)	Description	Notes
0.0	Soft, blue becomes less soft, shales slowly on exposure, except:	
1.0		
2.0		
3.0	3.0-3.5' - Hard, strongly weathered, light gray, whitish gray shale	
4.0		
5.0	5.0-5.5' - Moderately hard, high angle siliceous, yellow petroleum residue along plates	
6.0		
7.0	7.0-7.5' - Moderately hard, light, nonporous, siliceous, slip	
8.0		
9.0	9.0-9.5' - CALICHEOUS SHALE (10.0-10.5') (TAYLOR PGE)	
10.0		
11.0	11.0-11.5' - Siliceous, slip approx 10.0'	
12.0		
13.0	13.0-13.5' (TAYLOR PGE) Very dry, hard, unweathered, soft, gently slipping, solid (i.e. on west), nonjointed, non-fossiliferous, argill. to fine textured, fossiliferous, petrolierous, shales slowly on exposure, and dry with brown fine sand lenses	
14.0		
15.0	15.0-15.5' - Numerous fine sand lenses from white petroleum effluence	
16.0		
17.0		
18.0		
19.0		
20.0		
21.0		
22.0		
23.0		
24.0		
25.0		
26.0		
27.0		
28.0		
29.0		
30.0		
31.0		
32.0		
33.0		
34.0		
35.0		
36.0		
37.0		
38.0		
39.0		
40.0		
41.0		
42.0		
43.0		
44.0		
45.0		
46.0		
47.0		
48.0		
49.0		
50.0		
51.0		
52.0		
53.0		
54.0		
55.0		
56.0		
57.0		
58.0		
59.0		
60.0		
61.0		
62.0		
63.0		
64.0		
65.0		
66.0		
67.0		
68.0		
69.0		
70.0		
71.0		
72.0		
73.0		
74.0		
75.0		
76.0		
77.0		
78.0		
79.0		
80.0		
81.0		
82.0		
83.0		
84.0		
85.0		
86.0		
87.0		
88.0		
89.0		
90.0		
91.0		
92.0		
93.0		
94.0		
95.0		
96.0		
97.0		
98.0		
99.0		
100.0		

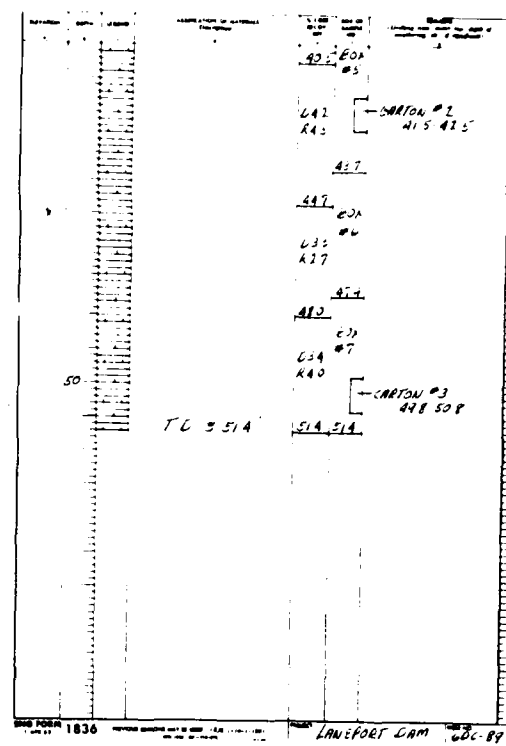
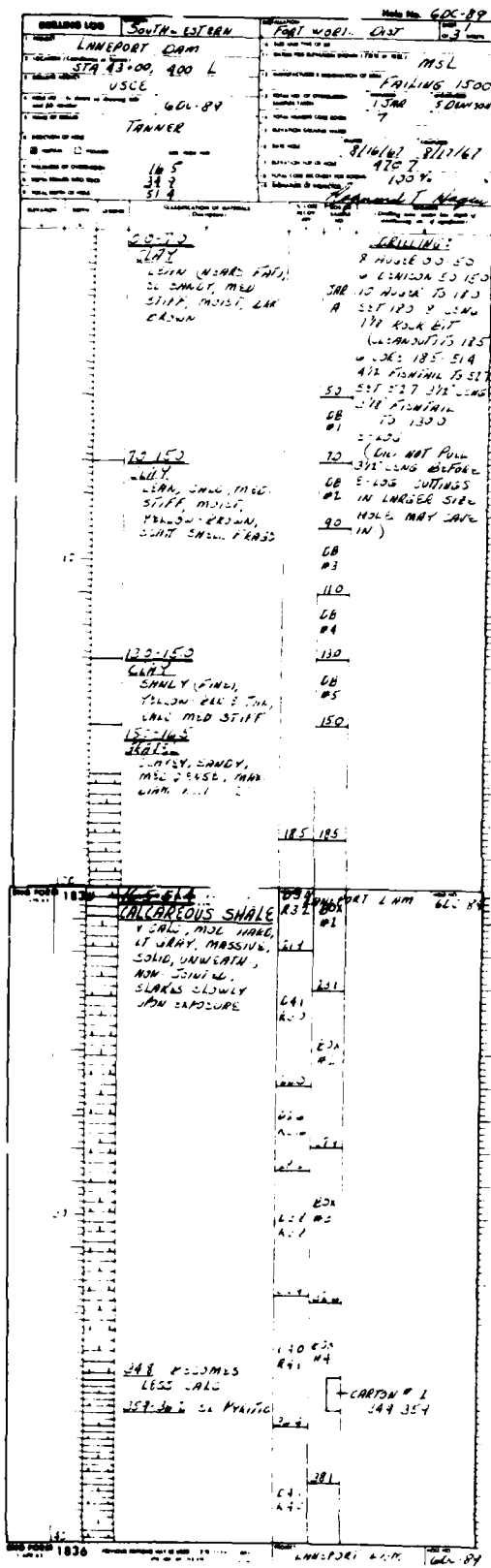
BORING LOG		Location	Port Wells	Notes
1. Name	2. Location	3. Date	4. Well No.	5. Well Depth
6. Well Type	7. Well Status	8. Well Condition	9. Well Construction	10. Well Completion
11. Well Owner	12. Well Operator	13. Well Engineer	14. Well Inspector	15. Well Tester
16. Well Log	17. Well Log	18. Well Log	19. Well Log	20. Well Log
21. Well Log	22. Well Log	23. Well Log	24. Well Log	25. Well Log
26. Well Log	27. Well Log	28. Well Log	29. Well Log	30. Well Log
31. Well Log	32. Well Log	33. Well Log	34. Well Log	35. Well Log
36. Well Log	37. Well Log	38. Well Log	39. Well Log	40. Well Log
41. Well Log	42. Well Log	43. Well Log	44. Well Log	45. Well Log
46. Well Log	47. Well Log	48. Well Log	49. Well Log	50. Well Log
51. Well Log	52. Well Log	53. Well Log	54. Well Log	55. Well Log
56. Well Log	57. Well Log	58. Well Log	59. Well Log	60. Well Log
61. Well Log	62. Well Log	63. Well Log	64. Well Log	65. Well Log
66. Well Log	67. Well Log	68. Well Log	69. Well Log	70. Well Log
71. Well Log	72. Well Log	73. Well Log	74. Well Log	75. Well Log
76. Well Log	77. Well Log	78. Well Log	79. Well Log	80. Well Log
81. Well Log	82. Well Log	83. Well Log	84. Well Log	85. Well Log
86. Well Log	87. Well Log	88. Well Log	89. Well Log	90. Well Log
91. Well Log	92. Well Log	93. Well Log	94. Well Log	95. Well Log
96. Well Log	97. Well Log	98. Well Log	99. Well Log	100. Well Log



U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS	
DESIGNED BY	LANEPORT LAKE TAN LARREL RIVER, TEXAS
DRAWN BY	LOGS OF BORINGS
CHECKED BY	8A6C-83 & 8A6C-84
SUBMITTED BY	VOLUME - II
INVESTIGATION NO.	10
PREPARATION DATE	10
FOR NO. NUMBER	SHEET NO.
OF	10

[illegible]

TO ACCOMPANY FINAL



DESIGNED BY		DRAWN BY		CHECKED BY		SUBMITTED BY		DATE		REVISION	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS											
LANEPORT LAKE SAN GABRIEL RIVER, TEXAS											
LOGS OF BORINGS 6DC-86 & 6DC-89 VOLUME - II											
SPECIFICATIONS DATED DRAWING NUMBER SHEET NO. 12											

21.5-79.7, SHALE (cont'd)

42.0

44.0

46.0

48.0

50.0

52.0

54.0

56.0

58.0

60.0

62.0

64.0

66.0

68.0

70.0

72.0

74.0

76.0

78.0

80.0

82.0

84.0

86.0

88.0

90.0

92.0

94.0

96.0

98.0

100.0

102.0

104.0

106.0

108.0

110.0

112.0

114.0

116.0

118.0

120.0

122.0

124.0

126.0

128.0

130.0

132.0

134.0

136.0

138.0

140.0

142.0

144.0

146.0

148.0

150.0

152.0

154.0

156.0

158.0

160.0

162.0

164.0

166.0

168.0

170.0

172.0

174.0

176.0

178.0

180.0

182.0

184.0

186.0

188.0

190.0

192.0

194.0

196.0

198.0

200.0

202.0

204.0

206.0

208.0

210.0

212.0

214.0

216.0

218.0

220.0

222.0

224.0

226.0

228.0

230.0

232.0

234.0

236.0

238.0

240.0

242.0

244.0

246.0

248.0

250.0

252.0

254.0

256.0

258.0

260.0

262.0

264.0

266.0

268.0

270.0

272.0

274.0

276.0

278.0

280.0

282.0

284.0

286.0

288.0

290.0

292.0

294.0

296.0

298.0

300.0

302.0

304.0

306.0

308.0

310.0

312.0

314.0

316.0

318.0

320.0

322.0

324.0

326.0

328.0

330.0

332.0

334.0

336.0

338.0

340.0

342.0

344.0

346.0

348.0

350.0

352.0

354.0

356.0

358.0

360.0

362.0

364.0

366.0

368.0

370.0

372.0

374.0

376.0

378.0

380.0

382.0

384.0

386.0

388.0

390.0

392.0

394.0

396.0

398.0

400.0

402.0

404.0

406.0

408.0

410.0

412.0

414.0

416.0

418.0

420.0

422.0

424.0

426.0

428.0

430.0

432.0

434.0

436.0

438.0

440.0

442.0

444.0

446.0

448.0

450.0

452.0

454.0

456.0

458.0

460.0

462.0

464.0

466.0

468.0

470.0

472.0

474.0

476.0

478.0

480.0

482.0

484.0

486.0

488.0

490.0

492.0

494.0

496.0

498.0

500.0

502.0

504.0

506.0

508.0

510.0

512.0

514.0

516.0

518.0

520.0

522.0

524.0

526.0

528.0

530.0

532.0

534.0

536.0

538.0

540.0

542.0

544.0

546.0

548.0

550.0

552.0

554.0

556.0

558.0

560.0

562.0

564.0

566.0

568.0

570.0

572.0

574.0

576.0

578.0

580.0

582.0

584.0

586.0

588.0

590.0

592.0

594.0

596.0

598.0

600.0

602.0

604.0

606.0

608.0

610.0

612.0

614.0

616.0

618.0

620.0

622.0

624.0

626.0

628.0

630.0

632.0

634.0

636.0

638.0

640.0

642.0

644.0

646.0

648.0

650.0

652.0

654.0

656.0

658.0

660.0

662.0

664.0

666.0

668.0

670.0

672.0

674.0

676.0

678.0

680.0

682.0

684.0

686.0

688.0

690.0

692.0

694.0

696.0

698.0

700.0

702.0

704.0

706.0

708.0

710.0

712.0

714.0

716.0

718.0

720.0

722.0

724.0

726.0

728.0

730.0

732.0

734.0

736.0

738.0

740.0

742.0

744.0

746.0

748.0

750.0

752.0

754.0

756.0

758.0

760.0

762.0

764.0

766.0

768.0

770.0

772.0

774.0

776.0

778.0

780.0

782.0

784.0

786.0

788.0

790.0

792.0

794.0

796.0

798.0

800.0

802.0

804.0

806.0

808.0

810.0

812.0

814.0

816.0

818.0

820.0

822.0

824.0

826.0

828.0

830.0

832.0

834.0

836.0

838.0

840.0

842.0

844.0

846.0

848.0

850.0

852.0

854.0

856.0

858.0

860.0

862

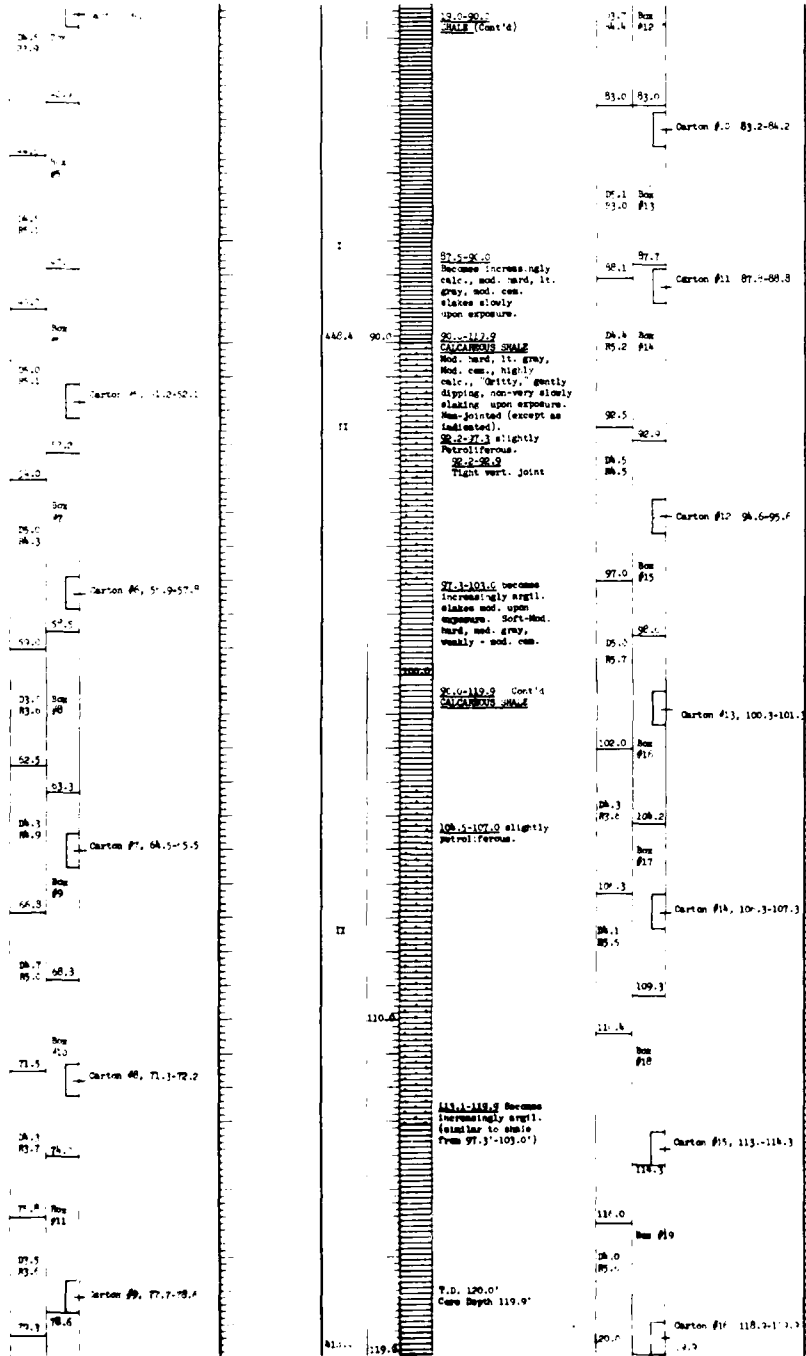
✓

TO ACCOMPANY FINAL FOUNDATION REPORT PLATE 59

DRIILLING LOG		Hole No. 546C-92	
Location - Upper Site		Port Moresby	
Incl. 941,335 T-300,001		Date of Drilling 6 Jan 18 1965	
Hole No. 546C-92		Drilled by 20	
Drilled by E. Walton		18 Sep 65 17 Sep 65	
Depth of Core 25.4		543.80	
Depth of Core 95.6		1000	
Depth of Core 121.0		Hurdless Summit	
Depth	Remarks	Depth	Remarks
0.0	0.0-1.0-1.0 fine sand trace, very stiff, silty, fat, light brown	Jan A, 0.0-1.6	Note: no water encountered within augured depth
0.2			
140.2	1.6-18.0-CLAY (CALICHE) modules of fine gravel and silty, hard, silty, tan, highly calc. gradine it yellowish tan and whitish gray	Jan B, 3.6-5.3	
4.0			
6.0	5.3, color changes to yellowish tan	Jan C, 5.3-9.0	
8.0			
10.0		Jan D, 9.0-18.0	Note: refusal with auger @ 18.0. Zone from 18.0-18.6 drilled with 6" core barrel
12.0			
529.8	18.0-18.6, CALICHE (LEFT) and cemented, massive, chalky, highly calc. whitish gray; it gray w/yellow FeO staining w/weakly cemented, tan, fine sand lenses:	Jan E, recovered at 15.6	
16.0	.3 thick @ 18.0 .3 thick @ 15.6 .2 thick @ 16.7		
18.0		17.5 Box 2	Jan F, recovered at 17.9
525.2	18.6		
20.0			
22.0	18.6-25.4 - Sand and gravel, at least in part, cemented		Note: 18.6-25.4, drilled with 3-7/8" roller rock bit. No water loss while penetrating this zone
24.0			
518.4	25.4		
26.0	25.4-51.2 (TAYLOR PMS) SHALE, highly fractured, tightly cemented to weakly cemented, calc soft and hard, dense textured, gently dipping, slickensided, jointed, slakes very readily on exposure, moist, predom. it yellowish tan and it gray	Carton #1, 26.5-27.5	
28.0			
30.0		29.5 Box 3	Carton #2, 31.7-32.6
32.0			
34.0			
36.0		35.0 Box 4	Carton #3, 36.3-37.2
38.0			
40.0			

Depth	Remarks	Depth	Remarks
42.0	SHALE (TAYLOR PMS) weathered (25.4-55.2)	42.0	Box 4
44.0			Carton #4, 41.6-42.5
46.0	52.6, Shale becomes and weathered		
48.0			
50.0	57.0-58.2, alternating weathered and unweathered zones, each approx. 1.5-2.7 thick		Carton #5, 46.2-47.1
52.0			
54.0			
56.0	51.2-51.7 (TAYLOR PMS) SHALE, calc. soft and hard, weakly and cemented, dense textured, gently dipping, solid (i.e. no vugs), unweathered (except highly weathered zone 55.3-56.0), slakes readily on exposure, dk gray		Carton #6, 52.2-53.1
58.0			
60.0			
62.0	SHALE (TAYLOR PMS) (53.8-61.7)		
64.0		62.5 Box 5	Carton #6, 63.5-64.4
66.0			
68.0			
70.0			
72.0	67.2, SHALE becomes noticeably pure calc, more strongly cemented, lighter in color, appearance of petroleum saturated, irregular, very thin, fine sand lenses	72.2 Box 6	Carton #9, 68.0-68.9
74.0			
76.0			
78.0		77.0 Box 7	Carton #10, 76.0-76.9
80.0			
			Carton #11, 79.0-79.9

TO ACCOMPANY FINAL



DESIGNATION OF BORING		DESCRIPTION OF BORING	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS		LANEPORT LAKE SAN GABRIEL RIVER, TEXAS	
LOGS OF BORINGS		8A6C-93	
VOLUME - II			
DESIGNED BY		INVESTIGATION NO.	
DRAWN BY		SPECIFICATIONS DATED	
CHECKED BY		DRAWING NUMBER	
SUBMITTED BY		SHEET NO.	
ENGINEER		SEQUENCE NO.	

112.0
111.2
110.2
109.2

110.0
109.0
108.0
107.0

106.0
105.0
104.0
103.0

102.0
101.0
100.0
99.0

98.0
97.0
96.0
95.0

94.0
93.0
92.0
91.0

90.0
89.0
88.0
87.0

86.0
85.0
84.0
83.0

82.0
81.0
80.0
79.0

78.0
77.0
76.0
75.0

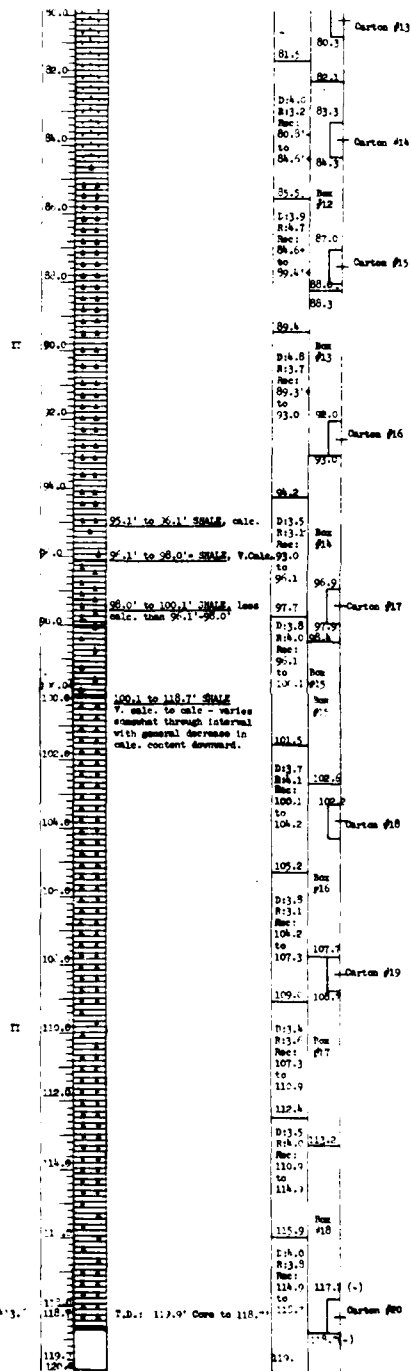
74.0
73.0
72.0
71.0

70.0
69.0
68.0
67.0

66.0
65.0
64.0
63.0

62.0
61.0
60.0
59.0

58.0
57.0
56.0
55.0



NO.	DATE	DESCRIPTION OF BORING
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS		
LANEPORT LAKE SAN GABRIEL RIVER, TEXAS		
LOGS OF BORINGS 8A6C-95 VOLUME - II		
DESIGNED BY:	J.M.	
DRAWN BY:	J.M.	
CHECKED BY:	J.M.	
SUBMITTED BY:	J.M.	
INVESTIGATION NO.	J.M.	
SPECIFICATIONS DATED	J.M.	
DRAWING NUMBER	SHEET NO.	SEQUENCE NO.
	18 OF 58	18

DRILLING LOG		PORT MOUTH	
PROJECT: LABAROT - QUARTZ Dike H-02, 241, 308 T-224, 000 QUARTZ-C Runfield 20.8 100.0 120.8		H-02, 241, 308 T-224, 000 QUARTZ-C Runfield 20.8 100.0 120.8	
0.0-1.0, FAY CLAY, stiff, moist, dk brown, sandy (fine)		0.0-1.0, FAY CLAY, stiff, moist, dk brown, sandy (fine)	
1.0-5.0, SILTY CLAY (CALICHE) hard, weakly con w/line, tan & dk brown, dry-moist		1.0-5.0, SILTY CLAY (CALICHE) hard, weakly con w/line, tan & dk brown, dry-moist	
5.0-10.0, GRAY SILT SAND, med dense, dry-moist, tan, very gravelly, sl silty, predom fine sand		5.0-10.0, GRAY SILT SAND, med dense, dry-moist, tan, very gravelly, sl silty, predom fine sand	
10.0-14.0, CLAYEY GRAVEL, med dense, moist, tan & yellow-brown, very clayey, sandy		10.0-14.0, CLAYEY GRAVEL, med dense, moist, tan & yellow-brown, very clayey, sandy	
14.0-16.0, GRAY SILT SAND, med stiff, moist-wet, tan, calc, lense, sl silty		14.0-16.0, GRAY SILT SAND, med stiff, moist-wet, tan, calc, lense, sl silty	
16.0-20.8, CLAYEY GRAVEL, med dense-lense, moist-wet, tan, very clayey, med fine NOVD-6		16.0-20.8, CLAYEY GRAVEL, med dense-lense, moist-wet, tan, very clayey, med fine NOVD-6	
20.8-22.7, SHALE - calcareous, moist, gently dipping 20.8-22.7 Soft, weak, yellow-brown, & it gray, iron stained, tightly compacted-weakly cemented, shales readily upon exposure. Jointed, freq of joints approx 1 joint/1.3 ft dip of joints predom 70°. Few scatt vert joints		20.8-22.7, SHALE - calcareous, moist, gently dipping 20.8-22.7 Soft, weak, yellow-brown, & it gray, iron stained, tightly compacted-weakly cemented, shales readily upon exposure. Jointed, freq of joints approx 1 joint/1.3 ft dip of joints predom 70°. Few scatt vert joints	
22.7-27.8, Box 1		22.7-27.8, Box 1	
27.8-31.2, Box 2		27.8-31.2, Box 2	
31.2-35.6, Box 3		31.2-35.6, Box 3	
35.6-40.0, Box 4		35.6-40.0, Box 4	

20.8-22.7, SHALE - calcareous, moist, gently dipping 20.8-22.7 Soft, weak, yellow-brown, & it gray, iron stained, tightly compacted-weakly cemented, shales readily upon exposure. Jointed, freq of joints approx 1 joint/1.3 ft dip of joints predom 70°. Few scatt vert joints	Box 1
22.7-27.8, Box 1	Box 1
27.8-31.2, Box 2	Box 2
31.2-35.6, Box 3	Box 3
35.6-40.0, Box 4	Box 4

20.5-30.5, SHALE (cont'd)

Box 5
Carton #8, 43.0-44.0
33.5

Box 6

35.2

Box 7

35.5-35.8 alternating sandy, silty, brown, iron stained and gray

35.8

Box 8
Carton #9, 45.2-46.2
35.8

Box 9
Carton #10, 50.6-51.6

50.5-50.5, SHALE (cont'd)

Box 10

Box 11
Carton #11, 63.5-64.5
50.5

Box 12

50.5-50.5, vertical joint

Box 13
Carton #12, 70.3-71.3
50.5

Box 14

50.5-50.5, becomes increasingly silty, and hard, sandy, tan, it and gray, shales only upon exposure. Non-stained

Box 15
Carton #13, 74.2-75.2
50.5

Box 16

Box 17
Carton #14, 78.5-79.5

50.5-50.5, CALCAREOUS SHALE, and hard, and con. gently dipping, massive, it gray, gritty texture non-very slowly slaking. Nonjointed (except as indicated)

Box 18

Box 19
Carton #11, 82.5-83.2

Box 20

87.2

Box 21

Box 22
Carton #12, 90.8-91.8

Box 23

Box 24
Carton #13, 94.5-95.5

97.5

Box 25

98.0-100.0, 80' vert open joint

Box 26

Box 27
Carton #14, 102.9-103.9

Box 28

Box 29
Carton #15, 106.3-107.3

Box 30

107.8-112.0, becomes increasingly argillaceous. Red hard, shales slowly upon exposure. It softer than calc shale above and below, and gray

Box 31
Carton #16, 111.3-112.3

Box 32

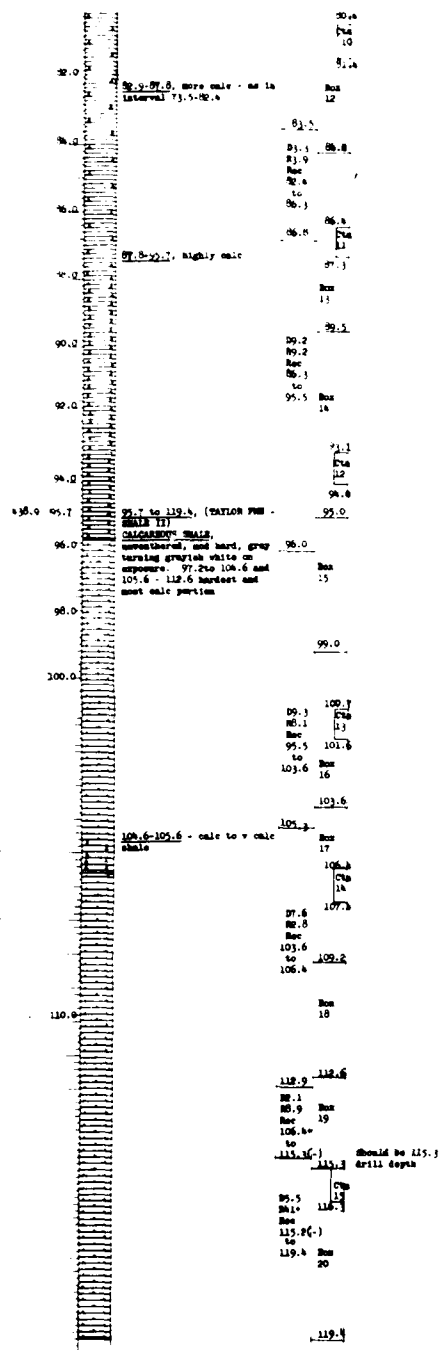
Box 33
Carton #17, 114.8-115.8

Box 34

Box 35
Carton #18, 119.4-120.4

120.5 120.0

U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
LANEPORT LAKE SAN CARLOS RIVER, TEXAS			
LOGS OF BORINGS 8A6C-96 VOLUME - II			
DESIGNED BY			
DRAWN BY			
CHECKED BY			
SUBMITTED BY			
ENGINEER	W. T. TAYLOR	SPECIFICATIONS DATED	REVISION NO.
	DRAWING NUMBER	SHEET NO.	19



U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
DESIGNED BY	LANEPORT LAKE SAN GABRIEL RIVER, TEXAS		
DRAWN BY	LOGS OF BORINGS		
CHECKED BY	BA6C-97		
SUBMITTED BY	VOLUME - II		
ENGINEER	INVESTIGATION NO.	SPECIFICATIONS DATED	SEQUENCE NO.
			20

NEW CLAY-SHALE (III)	
69.3-100.9' (Boring #8)	
82.0	Carton #10, 82.8-83.8'
84.0	83.8 Box #10
86.0	Carton #11, 87.0-88.0'
88.0	
90.0	89.1 Box #11
92.0	Carton #12, 91.0-92.6'
94.0	
96.0	96.9 Box #12
98.0	Carton #13, 96.1-97.1'
100.0	
100.9	100.9 Carton #14, 99.9-100.9'
80.7	
82.0	
84.0	Carton #5, 84.1-85.1'
86.0	
87.1	
88.0	Carton #7, 88.1-89.1'
90.0	
91.7	
92.0	Carton #6, 91.7-92.6'
94.0	
97.3	
98.0	Carton #9, 98.0-99.0'

U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
LANEPORT LAKE LANEPORT, TARRANT COUNTY, TEXAS			
LOGS OF BORINGS			
6DC-99			
VOLUME - II			
DESIGNED BY		NOTATION N	
DRAWN BY		DATE OF PLANS DATED	
CHECKED BY		BORING NUMBER	
SUBMITTED BY		SHEET NO	
ENGINEER		SEQUENCE NO	21

LOG (II)
(SECTION FIVE)

SECTION FIVE
LOG (III)
This section, flat
lying, thin,
of low petroleum
content, fine sand
grained, non-
plastic, solid
to gritty to
very coarse
in exposure,
and otherwise
as 55.0-63.0

LOG (III)
(SECTION FIVE)

LOG (I)
#10

Carton #1, 40.9-41.9

51.7
Box
#1

Carton #2, 45.6-46.6

52.1
Box
#1

Carton #3, 49.9-50.9

53.1
Box
#1

Carton #4, 54.2-55.2

59.7
Box
#1

Carton #7, 59.7-60.7

65.0
Box
#1

Carton #8, 65.7-66.7

Carton #9, 70.4-71.4

71.8
Box
#1

Carton #10, 75.1-76.1

76.1
Box
#10

Carton #11, 79.0-80.0

SHALE CLAY SHALE (III)
(55.0-100.7) (SECTION FIVE)

82.0
84.0
86.0
88.0
90.0
92.0
94.0
96.0
98.0
100.0

51.6
Box
#11

Carton #12, 82.8-83.8

86.0
Box
#12

91.1
Box
#13

Carton #13, 91.5-92.5

97.1
Box
#14

100.7 Carton #15, 99.6-100.6

NO.	REV.	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
DESIGNED BY	LANEPORT LAKE SAN GABRIEL RIVER, TEXAS		
DRAWN BY	LOGS OF BORINGS		
CHECKED BY	6DC-100		
SUBMITTED BY	VOLUME - II		
ENGINEER	INVITATION NO.	SPECIFICATIONS DATED	SEQUENCE NO.
		DRAWING NUMBER	SHEET NO.
		22 OF 24	22

G

F

E

D

C

B

A

DRILLING LOG		SYMBOL	DATE	TIME
PROJECT: Loneport		SYMBOL: Southeastern	DATE: 10/1/50	TIME: 10:00
LOCATION: Loneport		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
DRILLING AGENCY: USCEC - Fort Worth		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
NAME OF DRILLER: R M Dunn		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
ELEVATION OF HOLE: 462.7		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
DEPTH OF HOLE: 81.5		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
CLASSIFICATION OF MATERIAL: CLAY, occ. fine gravel, stiff, moist, tan, grayish black		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
At 2.0', color changes to med gray		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
At 6.0', color changes to yellowish brown		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
At 16.0', color changes to dk yellowish tan, occ. gravel and white lime nodules		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
At 18.0' - 20.0' SHALE, highly wea gypsiferous, hard, moist, noncemented, predom yellowish tan		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
ELEVATION OF HOLE: 462.7		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
DEPTH OF HOLE: 81.5		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
CLASSIFICATION OF MATERIAL: CLAY, occ. fine gravel, stiff, moist, tan, grayish black		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
At 2.0', color changes to med gray		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
At 6.0', color changes to yellowish brown		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
At 16.0', color changes to dk yellowish tan, occ. gravel and white lime nodules		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00
At 18.0' - 20.0' SHALE, highly wea gypsiferous, hard, moist, noncemented, predom yellowish tan		SYMBOL: 1000	DATE: 10/1/50	TIME: 10:00

TO ACCOMPANY FINAL FC

Hole No. 8A3F-470		NOTATION	
1. LOCATION	Southwestern	2. DATE	29 Sept 66
3. PROJECT	USCEC - Fort Worth	4. TOTAL NO. OF BORINGS	0
5. NAME OF DRILLER	BA3F470	6. DATE	29 Sept 66
7. NAME OF SUPERVISOR	R. M. Dunn	8. DATE	29 Sept 66
9. NAME OF DRILLER	BA3F470	10. DATE	29 Sept 66
11. NAME OF DRILLER	BA3F470	12. DATE	29 Sept 66
13. NAME OF DRILLER	BA3F470	14. DATE	29 Sept 66
15. NAME OF DRILLER	BA3F470	16. DATE	29 Sept 66
17. NAME OF DRILLER	BA3F470	18. DATE	29 Sept 66
19. NAME OF DRILLER	BA3F470	20. DATE	29 Sept 66
21. NAME OF DRILLER	BA3F470	22. DATE	29 Sept 66
23. NAME OF DRILLER	BA3F470	24. DATE	29 Sept 66
25. NAME OF DRILLER	BA3F470	26. DATE	29 Sept 66
27. NAME OF DRILLER	BA3F470	28. DATE	29 Sept 66
29. NAME OF DRILLER	BA3F470	30. DATE	29 Sept 66
31. NAME OF DRILLER	BA3F470	32. DATE	29 Sept 66
33. NAME OF DRILLER	BA3F470	34. DATE	29 Sept 66
35. NAME OF DRILLER	BA3F470	36. DATE	29 Sept 66
37. NAME OF DRILLER	BA3F470	38. DATE	29 Sept 66
39. NAME OF DRILLER	BA3F470	40. DATE	29 Sept 66
41. NAME OF DRILLER	BA3F470	42. DATE	29 Sept 66
43. NAME OF DRILLER	BA3F470	44. DATE	29 Sept 66
45. NAME OF DRILLER	BA3F470	46. DATE	29 Sept 66
47. NAME OF DRILLER	BA3F470	48. DATE	29 Sept 66
49. NAME OF DRILLER	BA3F470	50. DATE	29 Sept 66
51. NAME OF DRILLER	BA3F470	52. DATE	29 Sept 66
53. NAME OF DRILLER	BA3F470	54. DATE	29 Sept 66
55. NAME OF DRILLER	BA3F470	56. DATE	29 Sept 66
57. NAME OF DRILLER	BA3F470	58. DATE	29 Sept 66
59. NAME OF DRILLER	BA3F470	60. DATE	29 Sept 66
61. NAME OF DRILLER	BA3F470	62. DATE	29 Sept 66
63. NAME OF DRILLER	BA3F470	64. DATE	29 Sept 66
65. NAME OF DRILLER	BA3F470	66. DATE	29 Sept 66
67. NAME OF DRILLER	BA3F470	68. DATE	29 Sept 66
69. NAME OF DRILLER	BA3F470	70. DATE	29 Sept 66
71. NAME OF DRILLER	BA3F470	72. DATE	29 Sept 66
73. NAME OF DRILLER	BA3F470	74. DATE	29 Sept 66
75. NAME OF DRILLER	BA3F470	76. DATE	29 Sept 66
77. NAME OF DRILLER	BA3F470	78. DATE	29 Sept 66
79. NAME OF DRILLER	BA3F470	80. DATE	29 Sept 66
81. NAME OF DRILLER	BA3F470	82. DATE	29 Sept 66
83. NAME OF DRILLER	BA3F470	84. DATE	29 Sept 66
85. NAME OF DRILLER	BA3F470	86. DATE	29 Sept 66
87. NAME OF DRILLER	BA3F470	88. DATE	29 Sept 66
89. NAME OF DRILLER	BA3F470	90. DATE	29 Sept 66
91. NAME OF DRILLER	BA3F470	92. DATE	29 Sept 66
93. NAME OF DRILLER	BA3F470	94. DATE	29 Sept 66
95. NAME OF DRILLER	BA3F470	96. DATE	29 Sept 66
97. NAME OF DRILLER	BA3F470	98. DATE	29 Sept 66
99. NAME OF DRILLER	BA3F470	100. DATE	29 Sept 66

Hole No. 8A3F-469		NOTATION	
1. LOCATION	Southwestern	2. DATE	29 Sept 66
3. PROJECT	USCEC - Fort Worth	4. TOTAL NO. OF BORINGS	0
5. NAME OF DRILLER	BA3F469	6. DATE	29 Sept 66
7. NAME OF SUPERVISOR	R. M. Dunn	8. DATE	29 Sept 66
9. NAME OF DRILLER	BA3F469	10. DATE	29 Sept 66
11. NAME OF DRILLER	BA3F469	12. DATE	29 Sept 66
13. NAME OF DRILLER	BA3F469	14. DATE	29 Sept 66
15. NAME OF DRILLER	BA3F469	16. DATE	29 Sept 66
17. NAME OF DRILLER	BA3F469	18. DATE	29 Sept 66
19. NAME OF DRILLER	BA3F469	20. DATE	29 Sept 66
21. NAME OF DRILLER	BA3F469	22. DATE	29 Sept 66
23. NAME OF DRILLER	BA3F469	24. DATE	29 Sept 66
25. NAME OF DRILLER	BA3F469	26. DATE	29 Sept 66
27. NAME OF DRILLER	BA3F469	28. DATE	29 Sept 66
29. NAME OF DRILLER	BA3F469	30. DATE	29 Sept 66
31. NAME OF DRILLER	BA3F469	32. DATE	29 Sept 66
33. NAME OF DRILLER	BA3F469	34. DATE	29 Sept 66
35. NAME OF DRILLER	BA3F469	36. DATE	29 Sept 66
37. NAME OF DRILLER	BA3F469	38. DATE	29 Sept 66
39. NAME OF DRILLER	BA3F469	40. DATE	29 Sept 66
41. NAME OF DRILLER	BA3F469	42. DATE	29 Sept 66
43. NAME OF DRILLER	BA3F469	44. DATE	29 Sept 66
45. NAME OF DRILLER	BA3F469	46. DATE	29 Sept 66
47. NAME OF DRILLER	BA3F469	48. DATE	29 Sept 66
49. NAME OF DRILLER	BA3F469	50. DATE	29 Sept 66
51. NAME OF DRILLER	BA3F469	52. DATE	29 Sept 66
53. NAME OF DRILLER	BA3F469	54. DATE	29 Sept 66
55. NAME OF DRILLER	BA3F469	56. DATE	29 Sept 66
57. NAME OF DRILLER	BA3F469	58. DATE	29 Sept 66
59. NAME OF DRILLER	BA3F469	60. DATE	29 Sept 66
61. NAME OF DRILLER	BA3F469	62. DATE	29 Sept 66
63. NAME OF DRILLER	BA3F469	64. DATE	29 Sept 66
65. NAME OF DRILLER	BA3F469	66. DATE	29 Sept 66
67. NAME OF DRILLER	BA3F469	68. DATE	29 Sept 66
69. NAME OF DRILLER	BA3F469	70. DATE	29 Sept 66
71. NAME OF DRILLER	BA3F469	72. DATE	29 Sept 66
73. NAME OF DRILLER	BA3F469	74. DATE	29 Sept 66
75. NAME OF DRILLER	BA3F469	76. DATE	29 Sept 66
77. NAME OF DRILLER	BA3F469	78. DATE	29 Sept 66
79. NAME OF DRILLER	BA3F469	80. DATE	29 Sept 66
81. NAME OF DRILLER	BA3F469	82. DATE	29 Sept 66
83. NAME OF DRILLER	BA3F469	84. DATE	29 Sept 66
85. NAME OF DRILLER	BA3F469	86. DATE	29 Sept 66
87. NAME OF DRILLER	BA3F469	88. DATE	29 Sept 66
89. NAME OF DRILLER	BA3F469	90. DATE	29 Sept 66
91. NAME OF DRILLER	BA3F469	92. DATE	29 Sept 66
93. NAME OF DRILLER	BA3F469	94. DATE	29 Sept 66
95. NAME OF DRILLER	BA3F469	96. DATE	29 Sept 66
97. NAME OF DRILLER	BA3F469	98. DATE	29 Sept 66
99. NAME OF DRILLER	BA3F469	100. DATE	29 Sept 66

TO ACCOMPANY FINAL FOUNDATION REPORT PLATE 68

U.S. ARMY ENGINEER DISTRICT, FORT WORTH		CORPS OF ENGINEERS	
FORT WORTH, TEXAS			
DESIGNED BY	LANEPORT LAKE		
DRAWN BY	SAN GABRIEL RIVER, TEXAS		
CHECKED BY	LOGS OF BORINGS		
SUBMITTED BY	8A3F-469 & 8A3F-470		
ENGINEER	VOLUME - II		
INVESTIGATION NO.	SPECIFICATIONS DATED		
DRAWING NUMBER	SHEET NO.		
			23

Drilling Log Form for SOU. WESTERN PORT W. N. LIST 1

Project: LANEPORT DAM

USCE (L.R.D.)

84JF-479

HIDUS

180

110

130

00-35

CLAY

SANDY, SL. SANDY, MED. STIFF, MOIST, DRK. BROWN

35-80

CLAY

LEAN (NAMES FAT), STIFF, MOIST, MED. BROWN, MED. PLASTICITY, SL. SANDY, W. SCATT. SMALL FRAGS

80-120

CLAY

LEAN, MED. STIFF, MOIST, TAN, V. CALG, L.W. MED. PLASTICITY

120-180

CLAY

V. SANDY, FINE, MED. STIFF, WET-SATD, TAN

180

SHALE

DRILLING:

2 AUGER 50-196

SET 176 3/4 CSAG

3/8 FISHTAIL TO 1300

E-LOG

WATER LEVEL

ENCOUNTERED

WATER @ 130 (2/17/67)

Drilling Log Form for SOU. WESTERN PORT W. N. LIST 2

Project: LANEPORT DAM

USCE (L.R.D.)

84JF-480

HIDUS

180

110

130

00-145

CLAY

LEAN, MED. STIFF, MOIST, SCATT. SMALL FRAGS

00-15

SL. SANDY

15-35

MED. BROWN

35-80

SL. SANDY, DRK. BROWN, STIFF, MED. H. PLAS

80-120

AT. BROWN

130-145

SL. GRAVEL

145-230

GRAVEL

FINE, CLAYEY, SANDY, MED. BROWN, DRY-MOIST, TAN

230-280

BECOMES F. CLAYEY

285

SATD

TO R @ 230

DRILLING:

2 AUGER 00-140

MIXED DRILL MAG

478 ROCK MT @ 196

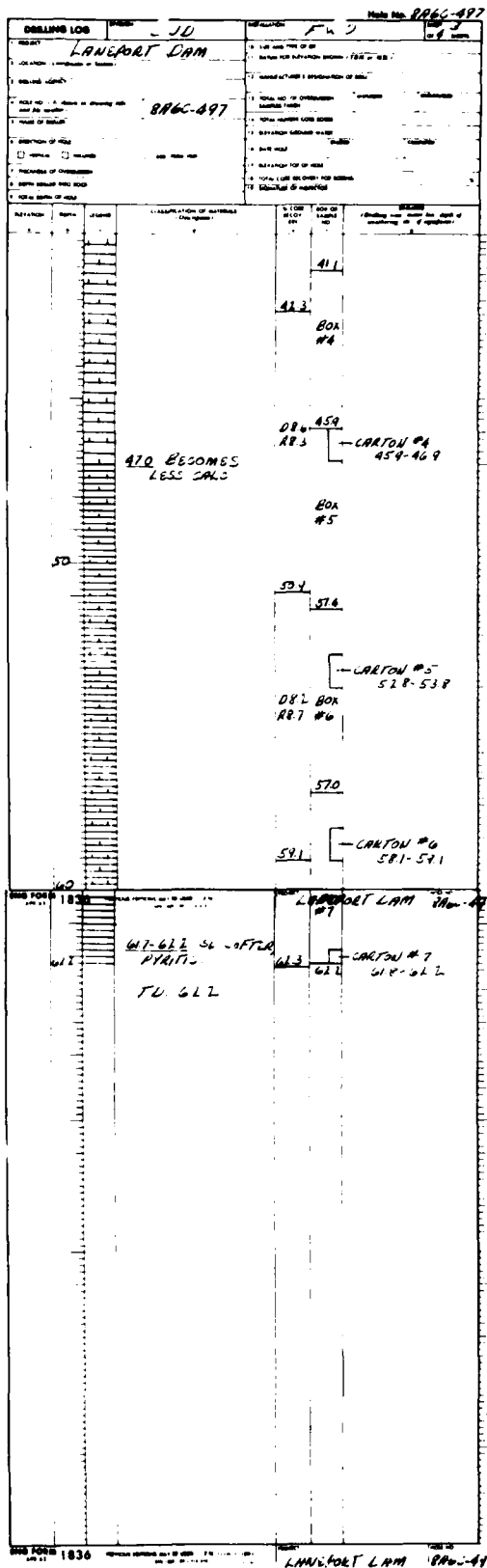
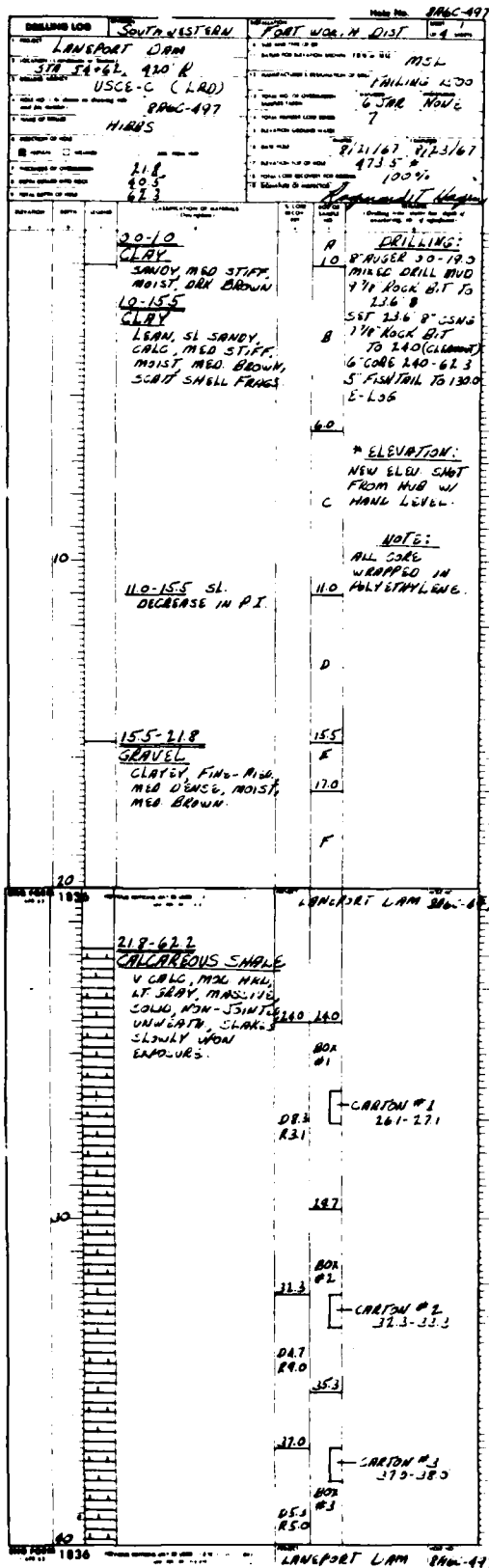
SET 196 3/4 CSAG

3/8 FISHTAIL TO 1300

C-LOG

WATER LEVEL

WATER ENCOUNTERED @ 130 (9/18/67)



DEPTH (FEET)	DESCRIPTION	ELEVATION (FEET)
0-10	CLAY, SANDY, MED. STIFF, MOIST, DARK BROWN	473.5
10-15.5	CLAY, LEAN, SL. SANDY, CALC. MED. STIFF, MOIST, MED. BROWN, SCAT. SHELL FRAGS.	473.5
15.5-21.8	GRAVEL, CLAYEY, FINE-MED. MED. DENSE, MOIST, MED. BROWN	473.5
21.8-62.2	CALCAREOUS SHALE, V. CALC. MED. HARD, LT. GRAY, MASSIVE, SOLID, NON-FISSILE, UNWEATH. SLAKES, SLOWLY WORN EXPOSURES.	473.5
62.2-103.6	CONCRETE CORE, FILTER LAYER, FOUNDATION OF SAND AND GRAVEL	473.5

Drilling Log Form 308-509

Drilling Log 308-509

Project: LANEPORT DAM

Station: STA 3+00. 150' RE

USCE-C

Driller: MARTIN & MARTIN

Date: 10/5/67

Inspector: R. T. Hagan

Log Description:

25.1

CRUING TO 21.9 (9' STATION)

22.1-24.1

CALCAREOUS SHALE

UNWEATH. MASSIVE, MOD. HARD, MOIST, LT. GRAY, V. COLO.

24.1-24.6

SOFT, DARK GRAY, AIR ESCAPING IN THIS SOFT STATE (NO GASEOUS ODOOR) NO WATER.

24.7-24.8

VERY SLACK ON W SIDE OF WALL.

24.9

NO ESCAPING (NO GASEOUS ODOOR)

25.0

BECOMES LESS COLO.

25.1-25.7

SOFT, DARK GRAY, PLASTIC, SL. SLICK, WATER SEEPING V. SLOWLY.

T.O. @ 64.1

INSPECTION HOLE

NOTE: ON 10/16/67, ESCAPING AIR HAD STOPPED. HOLE STILL AIRY.

Drilling Log Form 308-510

Drilling Log 308-510

Project: LANEPORT DAM

Station: STA 3+00. 150' RE

USCE-C

Driller: MARTIN & MARTIN

Date: 10/5/67

Inspector: R. T. Hagan

Log Description:

25.8

INSPECTION HOLE

NO. 308-510

CRUING 15.8

25.8-26.5

CALCAREOUS SHALE

MOD. HARD, MOIST, LT. GRAY, V. COLO. UNWEATH. MASSIVE.

26.7-27.1

SOFT, DARK GRAY, PLASTIC, WATER SEEPING V. SLOWLY.

27.2-27.3

SMALL SCATTERED SLICKS.

27.4

LOW POINT OF A WELL DEVELOPED SLICKENED DIAPYCNES WITH Q APPAR. 80" SLICK DOES NOT EXTEND ALONG WALL OF HOLE. APPROX. .05' OF SOFT RECONSTRUCTED PLASTIC MATT. LIVING SLICK.

27.4-27.9

SOFT, DARK GRAY, PLASTIC, SEEPING WATER.

T.O. @ 64.5

Drilling Log Form 308-514

Drilling Log 308-514

Project: LANEPORT DAM

Station: STA 3+00. 150' RE

USCE-C

Driller: MARTIN & MARTIN

Date: 10/13/67

Inspector: R. T. Hagan

Log Description:

20.5

20.5-21.5

CLAY

SANDY, W/ SCATT SHELL FRAGS, MED STIFF, MOIST, DARK BROWN

21.5-22.0

CLAY

LEAN, CALC, SL SANDY, SCATT SHELL FRAGS, MED BROWN

22.5-23.5

MED STIFF, MOIST

23.5-24.5

STIFF, DRY, MOIST

25.0

STIFF, DRY, MOIST

25.0-25.5

GRAVEL

SANDY, MED DENSE, MOIST, TAN

25.5-26.5

CALCAREOUS SHALE

V. CALC, MOD. HARD, MOIST, LT. GRAY, UNWEATH. SOLID, MASSIVE, NON-JOINTED (EXCEPT AS INDICATED)

26.5-27.5

15" JOINT

27.5-28.0

BROKEN

28.0-28.5

BROKEN

28.5-29.0

BROKEN

29.0-29.5

BROKEN

29.5-30.0

BROKEN

30.0-30.5

BROKEN

30.5-31.0

BROKEN

31.0-31.5

BROKEN

31.5-32.0

BROKEN

32.0-32.5

BROKEN

32.5-33.0

BROKEN

33.0-33.5

BROKEN

33.5-34.0

BROKEN

34.0-34.5

BROKEN

34.5-35.0

BROKEN

35.0-35.5

BROKEN

35.5-36.0

BROKEN

36.0-36.5

BROKEN

36.5-37.0

BROKEN

37.0-37.5

BROKEN

37.5-38.0

BROKEN

38.0-38.5

BROKEN

38.5-39.0

BROKEN

39.0-39.5

BROKEN

39.5-40.0

BROKEN

ACCOMPANY FINAL FOUNDATION REPORT PLATE 72

BROODING PLANS

386-389 D40 BOX
TIGHT VERT R39: #4
STANDARD JOINT

415
430

438 30" TIGHT
JOINT

439 20" TIGHT
JOINT

D40
R40

CARTON #6
445-455

BOX
#5

466-996 470
UNWEATH, SOFT-
MOD HARD, MED
GRAY, SLAKES
MOD UPON 62-
POSURE, NON-
JOINTED

D40
R41

BOX
#6
570

D45
R44

CARTON #7
534-534

555 BOX
107

D40
R41

CARTON #8
591-591

595 591

BOX
D45: #8
R43

614
690

D40 BOX
R40 #9

CARTON #9
664-674

680
690

D40
R40

BOX
#10

710
D10
R15

740 727

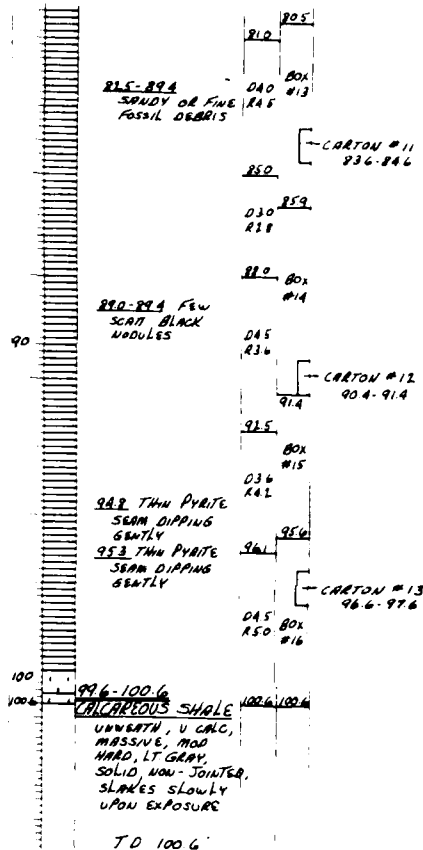
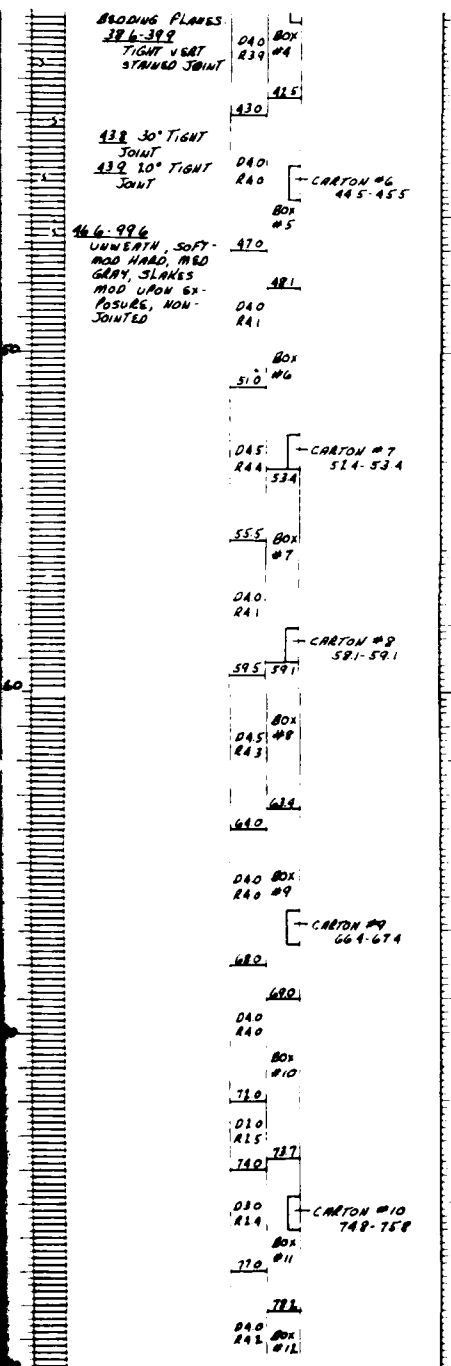
D30
R14

CARTON #10
748-758

BOX
#11
770

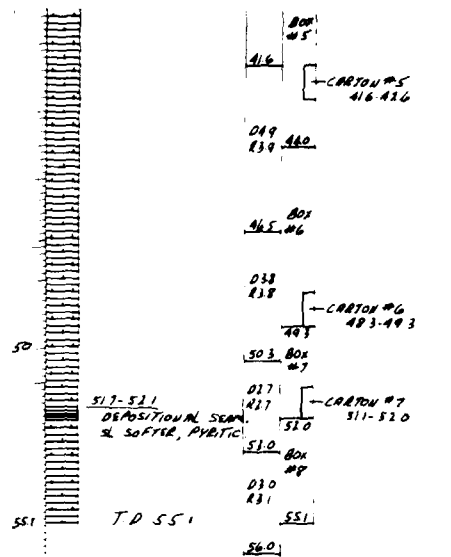
782
D40 BOX
R42 #12

TO ACCOMPANY FINAL FOUND



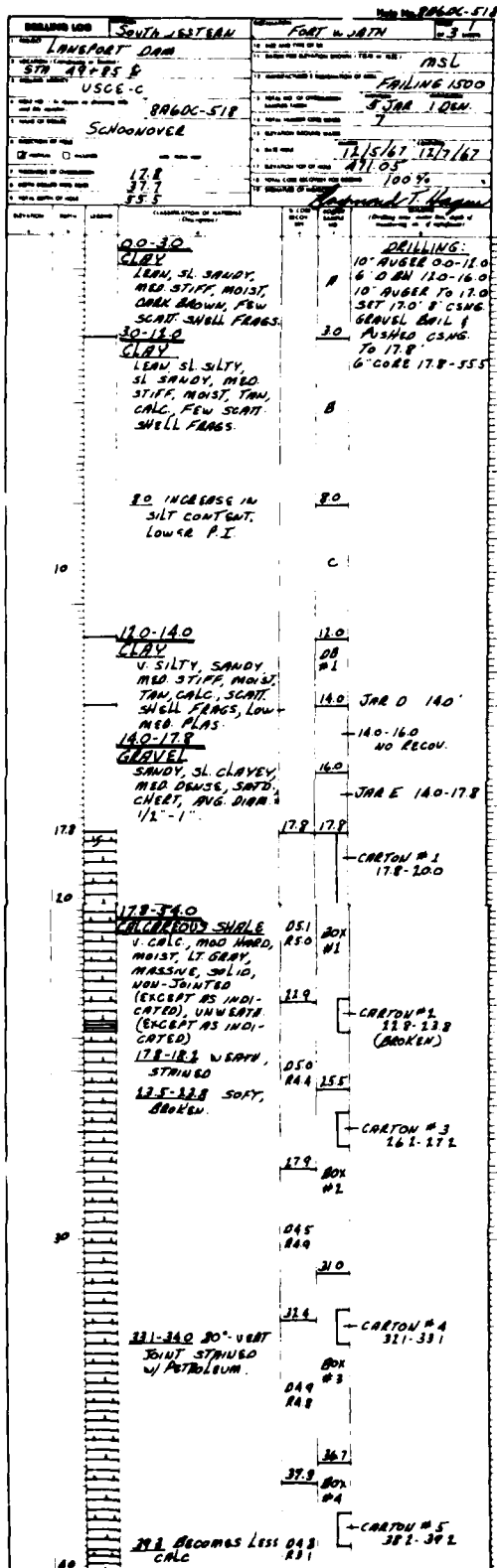
U.S. ARMY ENGINEER DISTRICT, FORT WORTH BUREAU OF ENGINEERS FORT WORTH, TEXAS			
DESIGNED BY		LANEPORT LAKE 1000 LANEPORT LAKE, TEXAS	
CHECKED BY		LOGS OF BORINGS 6DC-516 VOLUME - II	
SUBMITTED BY		NO. 1000 LANEPORT LAKE	
ENGINEER		DATE OF INVESTIGATION	
DRAWING NUMBER		SHEET NO.	
		29	

DRILLING LOG		SECT. WESTERN		FOOT W.D. 4 DIST.	
LAUSPORT DAM		574 4925 R		USCE-C	
8840C-517		SCHOOLHOUSE		12/16/67 12/13/67	
178		38.2		56.0	
0.0-3.0		CLAY		8' AUGER 00-10.0	
LEADY, SL. SANDY,		MED STIFF, MOIST,		GRAVEL BAK, AUGER	
MED BROWN		178		3.0-6 CORE 178-560	
3.0-14.2		CLAY		LEADY, SATY, CALC,	
MED STIFF, MOIST,		MED BROWN, SCAT		SHELL FRAGS	
8.0-10.0		BECOMES INCL		CALC	
10.0-12.0		TAN, BECOMES		INCL SANDY	
14.2-17.8		GRAVEL		CLAYEY, SANDY,	
SATY, DENSE, TAN.		17.8-55.1		CARBONOUS SHALE	
MOD HARD, V. CALC		LT GRAY, MASSIVE,		SOLID, SLAKES	
SLOWLY UPON		EXPOSURE		17.8-19.4	
19.4-22.0		W. 75		UNWEATH BELOW	
22.0-24.1		SOFT,		BROKEN	
24.1-26.2		VERT		JOINT LINED W/	
PETRO STAINS		36.2-38.2		BECOMES LESS	
CALC		38.2-40.0		BECOMES LESS	
40.0-42.0		BECOMES LESS		CALC	

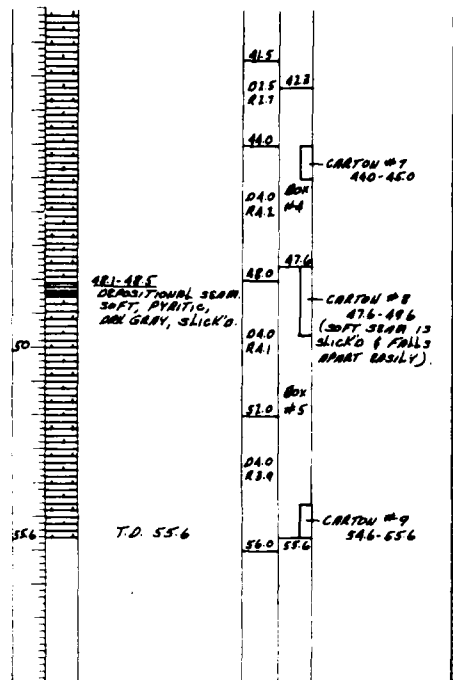


DRILLING LOG		SECT. WESTERN		FOOT W.D. 4 DIST.	
LAUSPORT DAM		574 4925 R		USCE-C	
8840C-517		SCHOOLHOUSE		12/16/67 12/13/67	
178		38.2		56.0	
0.0-3.0		CLAY		8' AUGER 00-10.0	
LEADY, SL. SANDY,		MED STIFF, MOIST,		GRAVEL BAK, AUGER	
MED BROWN		178		3.0-6 CORE 178-560	
3.0-14.2		CLAY		LEADY, SATY, CALC,	
MED STIFF, MOIST,		MED BROWN, SCAT		SHELL FRAGS	
8.0-10.0		BECOMES INCL		CALC	
10.0-12.0		TAN, BECOMES		INCL SANDY	
14.2-17.8		GRAVEL		CLAYEY, SANDY,	
SATY, DENSE, TAN.		17.8-55.1		CARBONOUS SHALE	
MOD HARD, V. CALC		LT GRAY, MASSIVE,		SOLID, SLAKES	
SLOWLY UPON		EXPOSURE		17.8-19.4	
19.4-22.0		W. 75		UNWEATH BELOW	
22.0-24.1		SOFT,		BROKEN	
24.1-26.2		VERT		JOINT LINED W/	
PETRO STAINS		36.2-38.2		BECOMES LESS	
38.2-40.0		BECOMES LESS		CALC	
40.0-42.0		BECOMES LESS		CALC	

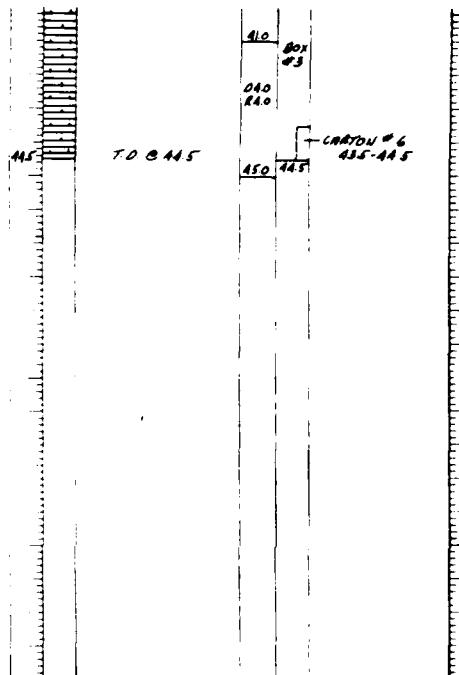
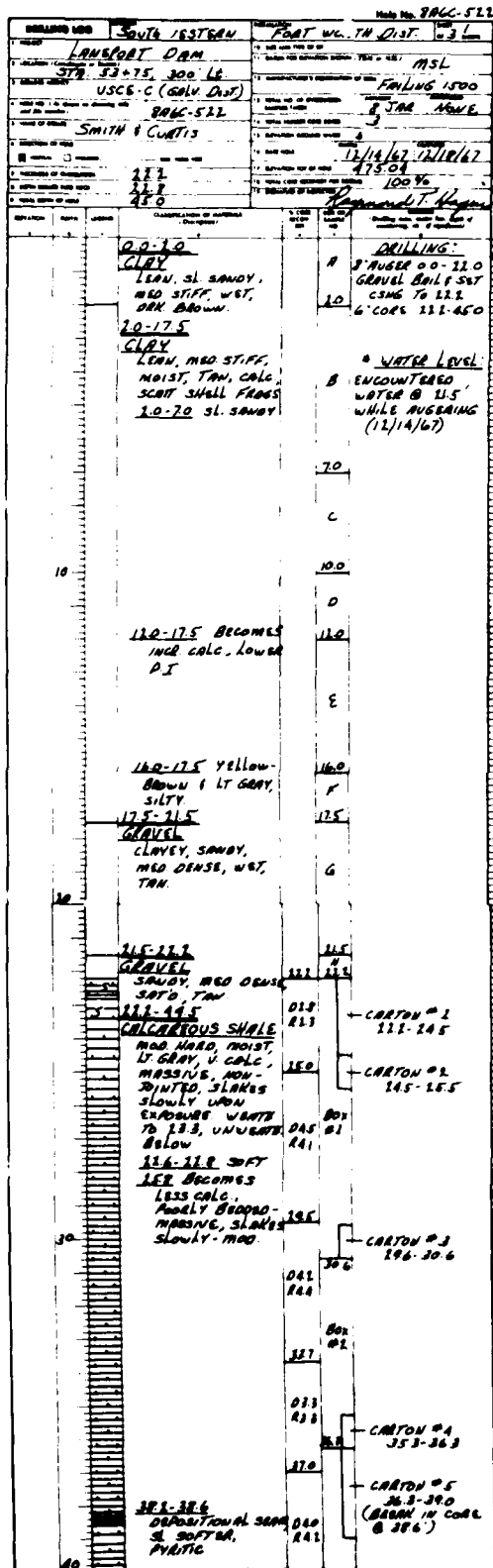
TO ACCOMPANY FINAL FOR



U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
DESIGNED BY	LANEPORT LAKE SAN GABRIEL RIVER, TEXAS		
DRAWN BY	LOGS OF BORINGS		
CHECKED BY	8A6DC-517 & 8A6DC-518		
SUBMITTED BY	VOLUME - II		
ENGINEER	NO. ATTN.	DATE	SHEET NO.
			30

[illegible]

DESIGNED BY DRAWN BY CHECKED BY SUBMITTED BY		U.S. ARMY ENGINEER DISTRICT, FORT WORTH OFFICE OF ENGINEERS FORT WORTH, TEXAS LANEPORT LAKE IN WINDY, TEXAS LOGS OF BORINGS 6DC - 519 & 8A6DC-520 VOLUME - II		RECEIVED NO 3
ENGINEER		DRAWING NUMBER	SHEET NO	



U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
DESIGNED BY	LANEPORT LAKE SAN GABRIEL RIVER, TEXAS		
DRAWN BY	LOGS OF BORINGS		
CHECKED BY	6DC-521 & 8A6C-522		
SUBMITTED BY	VOLUME - II		
ENGINEER	NOTATION NO.	SPECIFICATIONS DATED	SEQUENCE NO.
		DRAWING NUMBER	SHEET NO.
		32 OF 68	32

SOUTHWESTERN		FOOT NORTH DIST. 1	
LAKEPORT DAM		PUGER	
USCG-C (G.D.)		FAILING 1500	
88-514		NONE NONE	
SMITH		NONE	
1/23/68 1/24/68			
100			
10			
110			
100-170		90	
CLAY		A	
FAT. ORGANIC, MED		12	
STIFF, MOIST, DRY BRN		B	
12-40		8	
CLAY		40	
LEAN, SL SANDY,			
MED STIFF, MOIST,			
MED BROWN			
40-90			
CLAY		C	
V. LEAN, V. CALC,			
CONTAINS WHITE,			
LIME DEPOSITS &			
NODULES, STIFF,			
MOIST, TAN			
90-170		90	
CLAY			
V. LEAN, V. CALC,			
SL. GRN W/ HARD WALL			
GRN SEAMS			
DRY, WHITE		D	
140-150 HARD, WELL		140	
CRN. NEARS PURS		E	
LIME		150	
150-170 GRAVELLY		F	
90-170-200		170	
CLAY			
GRAVELLY, V. STIFF,			
MOIST, YELLOW-BRN.		G	
200-220		200	
SHALE (I)		H	
HIGHLY WEATH. SOFT			
TD @ 210		210	

BILLBOARD LOG
 NAME: **LANSFORD**
 1. Address: (Company or Home)
 ADDRESS: **USCG**
 2. City: **USCG**
 3. State: **USCG**
 4. Zip: **USCG**
 5. Phone: **USCG**
 6. Radio: **USCG**
 7. Name of Ship: **SMITH**
 8. Date of Birth: **USCG**
 9. Date of Death: **USCG**
 10. Date of Burial: **USCG**
 11. Date of Cremation: **USCG**
 12. Date of Interment: **USCG**
 13. Date of Burial: **USCG**
 14. Date of Cremation: **USCG**
 15. Date of Interment: **USCG**
 16. Date of Burial: **USCG**
 17. Date of Cremation: **USCG**
 18. Date of Interment: **USCG**
 19. Date of Burial: **USCG**
 20. Date of Cremation: **USCG**
 21. Date of Interment: **USCG**
 22. Date of Burial: **USCG**
 23. Date of Cremation: **USCG**
 24. Date of Interment: **USCG**
 25. Date of Burial: **USCG**
 26. Date of Cremation: **USCG**
 27. Date of Interment: **USCG**
 28. Date of Burial: **USCG**
 29. Date of Cremation: **USCG**
 30. Date of Interment: **USCG**
 31. Date of Burial: **USCG**
 32. Date of Cremation: **USCG**
 33. Date of Interment: **USCG**
 34. Date of Burial: **USCG**
 35. Date of Cremation: **USCG**
 36. Date of Interment: **USCG**
 37. Date of Burial: **USCG**
 38. Date of Cremation: **USCG**
 39. Date of Interment: **USCG**
 40. Date of Burial: **USCG**
 41. Date of Cremation: **USCG**
 42. Date of Interment: **USCG**
 43. Date of Burial: **USCG**
 44. Date of Cremation: **USCG**
 45. Date of Interment: **USCG**
 46. Date of Burial: **USCG**
 47. Date of Cremation: **USCG**
 48. Date of Interment: **USCG**
 49. Date of Burial: **USCG**
 50. Date of Cremation: **USCG**
 51. Date of Interment: **USCG**
 52. Date of Burial: **USCG**
 53. Date of Cremation: **USCG**
 54. Date of Interment: **USCG**
 55. Date of Burial: **USCG**
 56. Date of Cremation: **USCG**
 57. Date of Interment: **USCG**
 58. Date of Burial: **USCG**
 59. Date of Cremation: **USCG**
 60. Date of Interment: **USCG**
 61. Date of Burial: **USCG**
 62. Date of Cremation: **USCG**
 63. Date of Interment: **USCG**
 64. Date of Burial: **USCG**
 65. Date of Cremation: **USCG**
 66. Date of Interment: **USCG**
 67. Date of Burial: **USCG**
 68. Date of Cremation: **USCG**
 69. Date of Interment: **USCG**
 70. Date of Burial: **USCG**
 71. Date of Cremation: **USCG**
 72. Date of Interment: **USCG**
 73. Date of Burial: **USCG**
 74. Date of Cremation: **USCG**
 75. Date of Interment: **USCG**
 76. Date of Burial: **USCG**
 77. Date of Cremation: **USCG**
 78. Date of Interment: **USCG**
 79. Date of Burial: **USCG**
 80. Date of Cremation: **USCG**
 81. Date of Interment: **USCG**
 82. Date of Burial: **USCG**
 83. Date of Cremation: **USCG**
 84. Date of Interment: **USCG**
 85. Date of Burial: **USCG**
 86. Date of Cremation: **USCG**
 87. Date of Interment: **USCG**
 88. Date of Burial: **USCG**
 89. Date of Cremation: **USCG**
 90. Date of Interment: **USCG**
 91. Date of Burial: **USCG**
 92. Date of Cremation: **USCG**
 93. Date of Interment: **USCG**
 94. Date of Burial: **USCG**
 95. Date of Cremation: **USCG**
 96. Date of Interment: **USCG**
 97. Date of Burial: **USCG**
 98. Date of Cremation: **USCG**
 99. Date of Interment: **USCG**
 100. Date of Burial: **USCG**

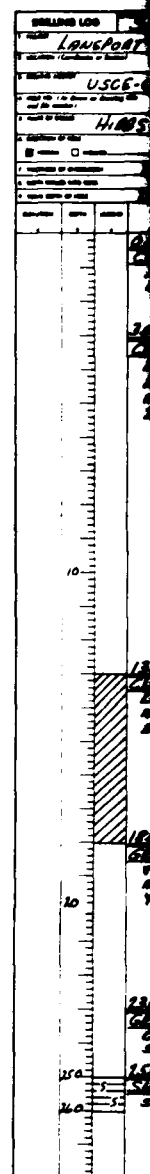
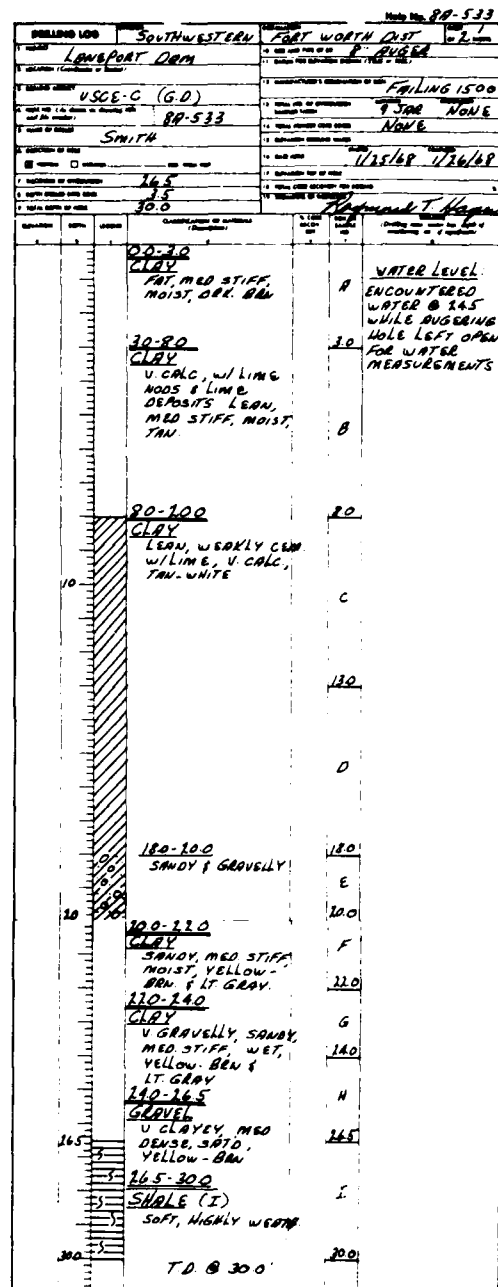
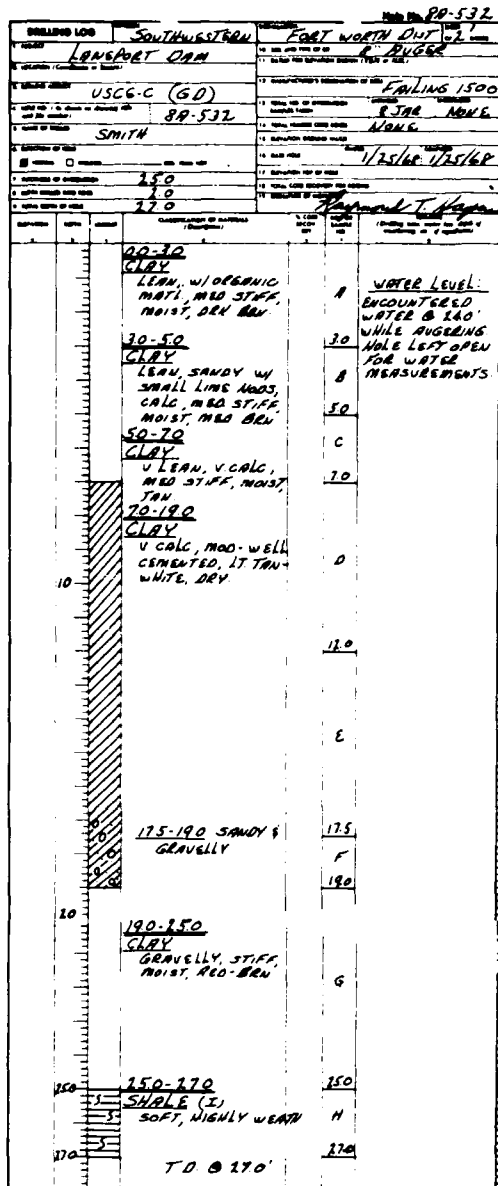
TO ACCOMPANY FINAL FOR

WORTH DIST. 2-1
 F. RUGER
 FAIRING 1500
 F. JAR NONE
 NONE
 1/23/68 1/24/68
 J. H. Hagan
 WATER LEVEL
 ENCOUNTERED
 WATER @ 17.5
 WHILE AUGERING
 HOLE LEFT OPEN
 FOR WATER
 MEASUREMENTS

WORTH DIST. 2-1
 F. RUGER
 FAIRING 1500
 F. JAR NONE
 NONE
 1/23/68 1/24/68
 J. H. Hagan
 WATER LEVEL
 ENCOUNTERED
 WATER @ 17.5
 WHILE AUGERING
 HOLE LEFT OPEN
 FOR WATER
 MEASUREMENTS

WORTH DIST. 2-1
 F. RUGER
 FAIRING 1500
 F. JAR NONE
 NONE
 1/23/68 1/24/68
 J. H. Hagan
 WATER LEVEL
 ENCOUNTERED
 WATER @ 17.5
 WHILE AUGERING
 HOLE LEFT OPEN
 FOR WATER
 MEASUREMENTS

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
 CORPS OF ENGINEERS
 FORT WORTH, TEXAS
 LANEPORT LAKE
 AN. ARK. RIVER, TEXAS
 LOGS OF BORINGS
 8A-523, 8A-524, 8A-525 & 8A-526
 VOLUME - II
 SUBMITTED BY
 DATE
 CHECKED BY
 DATE
 SHEET NO. 33



Drilling Log Form for SOUL. WESTERN, LANSFORD DAM, USCE-C (G.O.), 80-536, SMITH. The log details soil profiles from 0.0 to 19.0 feet. Key findings include: 0.0-7.0 Clay (SANDY, STIFF, MOIST, MED. BROWN); 7.0-12.0 Gravel (V. GRAY, V. CALC., MED. CEN. W/LIME, WHITE, DRY); 12.0-18.0 Clay (V. GRAVELLY, SANDY, MED. DENSE, MOIST, TAN.); 18.0-19.0 Shale (I) (SOFT, HIGHLY WEATH.). A water level was encountered at 15.0 feet. The log is dated 1/26/67 and signed by Raymond T. Hagan.

Drilling Log Form for SOUL. WESTERN, LANSFORD DAM, USCE-C (L.R.D.), 80-537, SMITH. The log details soil profiles from 0.0 to 6.0 feet. Key findings include: 0.0-5.0 Clay (SANDY, SL. GRAVELLY, MED. STIFF, MOIST, MED. BROWN); 5.0-6.0 Shale (I) (SOFT, HIGHLY WEATH.). A water level was encountered at 4.0 feet. The log is dated 1/26/67 and signed by Raymond T. Hagan.

Drilling Log Form for SOUL. WESTERN, LANSFORD DAM, USCE-C (L.R.D.), 80-538, HIBBS. The log details soil profiles from 0.0 to 14.0 feet. Key findings include: 0.0-10.0 Clay (SANDY, GRAVELLY, W/LIME NODS, MED. STIFF, MOIST, MED. BKN.); 10.0-12.5 Gravel (SANDY, SL. GRAVELLY, HARD, MOD. CEN. W/LIME, DRY, TAN., 55-60 W/L. CEN.); 12.5-14.0 Gravel (V. CLAYEY (NEARS A GRAVELLY CLAY), SANDY, MED. DENSE, MOIST, TAN.). A water level was encountered at 10.0 feet. The log is dated 1/26/67 and signed by Raymond T. Hagan.

Drilling Log Form for SOUL. WESTERN, LANSFORD DAM, USCE-C (G.O.), 80-539, SMITH. The log details soil profiles from 0.0 to 12.0 feet. Key findings include: 0.0-3.0 Clay (FAT, W/SCOTT, GRAVEL, MED. STIFF, MOIST, BLACK.); 3.0-6.5 Clay (SANDY, MED. STIFF, MOIST, LT. GRAY, MOTTLED YELLOW-BKN.); 6.5-11.0 Clay (V. GRAVELLY, MED. STIFF, WET-SATD, YELLOW-BKN.); 11.0-12.0 Shale (I) (SOFT, HIGHLY WEATH.). A water level was encountered at 3.0 feet. The log is dated 1/26/67 and signed by Raymond T. Hagan.

Drilling Log Form for SOUL. WESTERN, LANSFORD DAM, USCE-C (L.R.D.), 80-540, HIBBS. The log details soil profiles from 0.0 to 13.5 feet. Key findings include: 0.0-10.0 Clay (SANDY, MED. STIFF, MOIST, MED. BKN.); 10.0-13.5 Shale (I) (SOFT, HIGHLY WEATH.). A water level was encountered at 10.0 feet. The log is dated 1/26/67 and signed by Raymond T. Hagan.

Drilling Log Form for SOUL. WESTERN, LANSFORD DAM, USCE-C (L.R.D.), 80-541, HIBBS. The log details soil profiles from 0.0 to 9.5 feet. Key findings include: 0.0-9.5 Clay (SANDY, MED. STIFF, MOIST, MED. BKN.); 9.5-10.0 Shale (I) (SOFT, HIGHLY WEATH.). A water level was encountered at 9.5 feet. The log is dated 1/26/67 and signed by Raymond T. Hagan.

TO ACCOMPANY FINAL FOR

Plate No. 8A-539

DIST 1

FAILING 1500
5 JAR NONE
NONE

DATE 7/26/68

BY T. Hagen

WATER LEVEL:
ENCOUNTERED
WATER @ 100'
WHILE AUGERING
HOLE LEFT
OPEN FOR WATER
MEASUREMENTS.

LOCATION:
1/2 MILE OFFSET
EAST WEST
ON COUNTY ROAD

ELEVATION:
10' OF OFFSET
LOCATION IS
16' LOWER THAN
ORG. LOC.

Plate No. 8A-540

DIST 1

FAILING 1500
5 JAR NONE
NONE

DATE 7/26/68

BY T. Hagen

WATER LEVEL:
ENCOUNTERED
WATER @ 100'
WHILE AUGERING
HOLE LEFT OPEN
FOR WATER
MEASUREMENTS.

LOCATION:
1/2 MILE OFFSET
EAST WEST
ON COUNTY ROAD

ELEVATION:
10' OF OFFSET
LOCATION IS
16' LOWER THAN
ORG. LOC.

DEPTH	SOIL	REMARKS	DEPTH	SOIL	REMARKS
0-1.0	CLAY		A		
1.0-4.5	CLAY	SANDY, SL. GRAVELLY, MED. STIFF, MOIST, DRY BROWN	B		
4.5-7.0	CLAY	LEAN, CALC. SANDY, W/LIME NODS, MED STIFF, MOIST, MED. BDN	C		
7.0-9.0	GRAVEL	V. CLAYEY, SANDY, MOD. C.B.M. W/LIME, DRY-MOIST, TAN	D		
9.0-13.5	GRAVEL	CLAYEY, SANDY, MED DENSE, SATD, TAN.	E		
13.5-14.5	SHALE (X)	SOFT, HIGHLY WEATH.	F		
		T.O. @ 14.5			

Plate No. 8A-541

DIST 1

FAILING 1500
5 JAR NONE
NONE

DATE 7/26/68

BY T. Hagen

WATER LEVEL:
ENCOUNTERED
WATER @ 30'
WHILE AUGERING
LEFT HOLE OPEN
FOR WATER
MEASUREMENTS.

LOCATION:
1/2 MILE OFFSET
EAST WEST
ON COUNTY ROAD

ELEVATION:
10' OF OFFSET
LOCATION IS
16' LOWER THAN
ORG. LOC.

DEPTH	SOIL	REMARKS	DEPTH	SOIL	REMARKS
0-3.5	CLAY		A		
3.5-5.0	GRAVEL	SANDY, GRAVELLY, NUMEROUS LIME NODS, MED STIFF, MOIST, DRY BDN	B		
5.0-7.5	CLAY	HIGH CLAY - 5' CLAYEY, SATD, TAN	C		
7.5-12.0	SHALE	SL. GRAVELLY, MED STIFF, WET, YELLOW BDN	D		
		T.O. @ 12.0			

Plate No. 8A-539

DIST 1

FAILING 1500
5 JAR NONE
NONE

DATE 7/26/68

BY T. Hagen

WATER LEVEL:
HOLE LEFT OPEN
FOR WATER
MEASUREMENTS.

Plate No. 8A-541

DIST 1

FAILING 1500
5 JAR NONE
NONE

DATE 7/26/68

BY T. Hagen

WATER LEVEL:
HOLE LEFT OPEN
FOR WATER
MEASUREMENTS.

LOCATION:
1/2 MILE OFFSET
EAST WEST
ON COUNTY ROAD

ELEVATION:
10' OF OFFSET
LOCATION IS
16' LOWER THAN
ORG. LOC.

DEPTH	SOIL	REMARKS	DEPTH	SOIL	REMARKS
0-1.0	CLAY		A		
1.0-4.0	CLAY	SANDY, GRAVELLY, MED STIFF, MOIST, DRY BROWN	B		
4.0-8.0	GRAVEL	V. CLAYEY, SANDY, MED DENSE, WET TAN. GRAVEL PEGGON FINE	C		
8.0-9.5	CLAY	GRAVELLY, CLAYEY, SAND GRAINS PEGGON GCS (NEAR FINE GRAVEL SIZE), MED DENSE, SATD, BROWN	D		
9.5-10.5	SHALE	SANDY, GRAVELLY, MED STIFF, WET, YELLOW-BRN MOTTLED LT GRAY	E		
		T.O. @ 10.5			

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: _____

DRAWN BY: _____

CHECKED BY: _____

SUBMITTED BY: _____

DATE: 7/26/68

PROJECT: LANEPORT LAKE
AN. HARBOR, TEXAS

LOGS OF BORINGS
8A-536, 8A-537, 8A-538, 8A-539, 8A-540
8A-541 & 8A-542
VOLUME - II

REVISION NO. _____

SHEET NO. 36

Note No. 8A-546

BORING LOG		3001. WESTERN		PORT WORTH DIST. - 1	
NAME		LANEPORT DAM		NO. AND TYPE OF BORING	
1. LOCATION (Reference to Map)				2. BORING NO. (Reference to Map)	
3. BORING DEPTH		USGS-C (R.P.O.)		4. BORING NO. (Reference to Map)	
5. DATE OF BORING		8A-546		6. BORING NO. (Reference to Map)	
7. NAME OF BORER		H. B. D. S.		8. BORING NO. (Reference to Map)	
9. LOCATION OF BORING				10. BORING NO. (Reference to Map)	
11. BORING NO. (Reference to Map)		90		12. BORING NO. (Reference to Map)	
13. BORING NO. (Reference to Map)		1.0		14. BORING NO. (Reference to Map)	
15. BORING NO. (Reference to Map)		10.0		16. BORING NO. (Reference to Map)	
17. BORING NO. (Reference to Map)				18. BORING NO. (Reference to Map)	
19. BORING NO. (Reference to Map)				20. BORING NO. (Reference to Map)	
21. BORING NO. (Reference to Map)				22. BORING NO. (Reference to Map)	
23. BORING NO. (Reference to Map)				24. BORING NO. (Reference to Map)	
25. BORING NO. (Reference to Map)				26. BORING NO. (Reference to Map)	
27. BORING NO. (Reference to Map)				28. BORING NO. (Reference to Map)	
29. BORING NO. (Reference to Map)				30. BORING NO. (Reference to Map)	
31. BORING NO. (Reference to Map)				32. BORING NO. (Reference to Map)	
33. BORING NO. (Reference to Map)				34. BORING NO. (Reference to Map)	
35. BORING NO. (Reference to Map)				36. BORING NO. (Reference to Map)	
37. BORING NO. (Reference to Map)				38. BORING NO. (Reference to Map)	
39. BORING NO. (Reference to Map)				40. BORING NO. (Reference to Map)	
41. BORING NO. (Reference to Map)				42. BORING NO. (Reference to Map)	
43. BORING NO. (Reference to Map)				44. BORING NO. (Reference to Map)	
45. BORING NO. (Reference to Map)				46. BORING NO. (Reference to Map)	
47. BORING NO. (Reference to Map)				48. BORING NO. (Reference to Map)	
49. BORING NO. (Reference to Map)				50. BORING NO. (Reference to Map)	
51. BORING NO. (Reference to Map)				52. BORING NO. (Reference to Map)	
53. BORING NO. (Reference to Map)				54. BORING NO. (Reference to Map)	
55. BORING NO. (Reference to Map)				56. BORING NO. (Reference to Map)	
57. BORING NO. (Reference to Map)				58. BORING NO. (Reference to Map)	
59. BORING NO. (Reference to Map)				60. BORING NO. (Reference to Map)	
61. BORING NO. (Reference to Map)				62. BORING NO. (Reference to Map)	
63. BORING NO. (Reference to Map)				64. BORING NO. (Reference to Map)	
65. BORING NO. (Reference to Map)				66. BORING NO. (Reference to Map)	
67. BORING NO. (Reference to Map)				68. BORING NO. (Reference to Map)	
69. BORING NO. (Reference to Map)				70. BORING NO. (Reference to Map)	
71. BORING NO. (Reference to Map)				72. BORING NO. (Reference to Map)	
73. BORING NO. (Reference to Map)				74. BORING NO. (Reference to Map)	
75. BORING NO. (Reference to Map)				76. BORING NO. (Reference to Map)	
77. BORING NO. (Reference to Map)				78. BORING NO. (Reference to Map)	
79. BORING NO. (Reference to Map)				80. BORING NO. (Reference to Map)	
81. BORING NO. (Reference to Map)				82. BORING NO. (Reference to Map)	
83. BORING NO. (Reference to Map)				84. BORING NO. (Reference to Map)	
85. BORING NO. (Reference to Map)				86. BORING NO. (Reference to Map)	
87. BORING NO. (Reference to Map)				88. BORING NO. (Reference to Map)	
89. BORING NO. (Reference to Map)				90. BORING NO. (Reference to Map)	
91. BORING NO. (Reference to Map)				92. BORING NO. (Reference to Map)	
93. BORING NO. (Reference to Map)				94. BORING NO. (Reference to Map)	
95. BORING NO. (Reference to Map)				96. BORING NO. (Reference to Map)	
97. BORING NO. (Reference to Map)				98. BORING NO. (Reference to Map)	
99. BORING NO. (Reference to Map)				100. BORING NO. (Reference to Map)	

20-15
CLAY
FAT, ORGANIC,
MED. STIFF, MOIST,
BLACK.

15-60
CLAY
GRAVELLY, SANDY,
MED. STIFF, MOIST,
DRY. BRN.

60-90
GRAVEL
MAY. DIAM. ROUD.
4". SAND, TAN.

90-100
SHALE
SOFT, HIGHLY WEATH.

T.D. @ 100'

WATER LEVEL
ENCOUNTERED
WATER @ 60'
WHILE AUGERING
HOLE LEFT OPEN
FOR WATER
MEASUREMENTS

12/26/68 1/26/69

Signature: J. H. H. H.

DESIGNED BY		LANEPORT LAKE	
DRAWN BY		SAN GABRIEL RIVER, TEXAS	
CHECKED BY		LOGS OF BORINGS	
SUBMITTED BY		8A-543 & 8A-546	
INVESTIGATION NO.		VOLUME - II	
SPECIFICATION DATED		DRAWING NUMBER	
SHEET NO		37	

[illegible]

394-587

635EN UNWEATH.
W/ SOFT WEATH.
BONES AS INDICATED,
SOFT (BL).
FIRMER THAN WEATH.
SHALE ABOVE), MOIST.
Dk GRAY (YELLOW) #17
[CARTON #6
417-427
417]

BEN. IN WEATH. ZONES), BOX
NON-JOINTED #7
(EXCEPT AS INDICATED), NO GYP. R46
#7

410-428 WEATH.
427-438 VERT.
OPEN JOINT.
474-477 WEATH. #12
[CARTON #7
462-472
478]

[CARTON #8
488-498
BOX #8
515

DAL
R41 [CARTON #9
344 534-544

571-587 WEATH. #67 BOX #9
571-592 TIGHT
HIGH ANGLE JOINT.

C43
R44 [CARTON #10
580-590

587-815 #67
UNWEATH., SOFT-MOD HARD, MOIST,
Dk GRAY, NON-JOINTED
#10
DAL R43
R42 [CARTON #11
653 656 639-649

DAL R42 BOX #11
685

DAL R45 [CARTON #12
713 703-713

716 BOX #12

D50 R43 [CARTON #13
766 756-766

786 BOX #13

44.1-44.9
W. 60.4, Yellow-Brown.

801 #4 41.0
41.9
845 #4 41.9
844 #5 46.5
830 #6 49.5
820 #6 51.4
810 #7 53.5
800 #8 57.0
735 #8 57.5
736 #8 60.6

50
606

T.D @ 60.6

TO ACCOMPANY FINAL FOUNDATION

045
 444 BOX
 #7
 418
 041 463 CARTON #9
 444 434-443
 470 BOX
 #8
 043 490
 443 490-499 CARTON #10
 513 BOX
 #9
 437
 437
 550 546
 044 BOX
 443 #10
 598
 039
 440
 623
 017
 418
 460
 648-657 CARTON #13
 031
 431
 491
 043
 445
 706-715 CARTON #14
 724 724

NO. NO.		ACTION		DATE		DESCRIPTION OF ACTION	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS							
DESIGNED BY:		LANEPORT LAKE					
		SAN GABRIEL RIVER, TEXAS					
DRAWN BY:		LOGS OF BORINGS					
CHECKED BY:		8A6C-550					
		VOLUME - II					
SUBMITTED BY:		INVESTIGATION NO.		SPECIFICATIONS DATED		SEQUENCE NO.	
ENGINEER		DRAWING NUMBER		SHEET NO.		40	
				40 OF 66			

20

51.5 21.5

21.5-97.7
SHALE (S)
CALC. Poorly BROKEN
21.5-280
HIGHLY WEATH.
SOFT MOIST,
YELLOW-BRN &
LT. GRAY, SCATT.
TIGHT JOINTS,
SLAKES RAPIDLY
UPON EXPOSURE.
270-278 BRICKLY
OPEN HIGH ANG.
JOINTS.
280-298 SL. WEATH.
ALTERNATING DKG
GRAY & YELLOW-BRN
298-97.7
UNWEATH. SOFT-
MOD HARD, MOIST,
DKG GRAY, SOLID,
NON-JOINTED.
SLAKES MOD. UPON
EXPOSURE.

21.5
N
33.7 23.7
D4.3
R2.3
BOX
#1
280
D4.2 28.5
R4.4
21.1
BOX
#2
D4.4
R4.4
35.1
36.6
BOX
#3
D4.6
F4.3

CARTON #1
24.1-25.1
CARTON #2
30.4-31.4
CARTON #3
36.5-37.5

30

40



410 402
[CARTON #4
200-402

041
R44 Box
#4

451

465

044
R44 [CARTON #5
200-465
Box
#5

045
R44 361

341 Box
#6

043
R44

374

374
F
H

040
R33

614 [CARTON #7
200-614
[CARTON #8
200-614

039 619
R40

801
667 #9

540
R40 685

703 [CARTON #9
200-703

041
R41 Box
#9

744 741

041
R41 Box
#10

795

800

041
R40

316 Box
#11

041
R41 [CARTON #11
200-854
854

267 Box
#12

041
R41 397 [CARTON #12
200-907
Box
#13

041
R41 338

949 Box
#14

040
R39 [CARTON #13
200-977
977

999

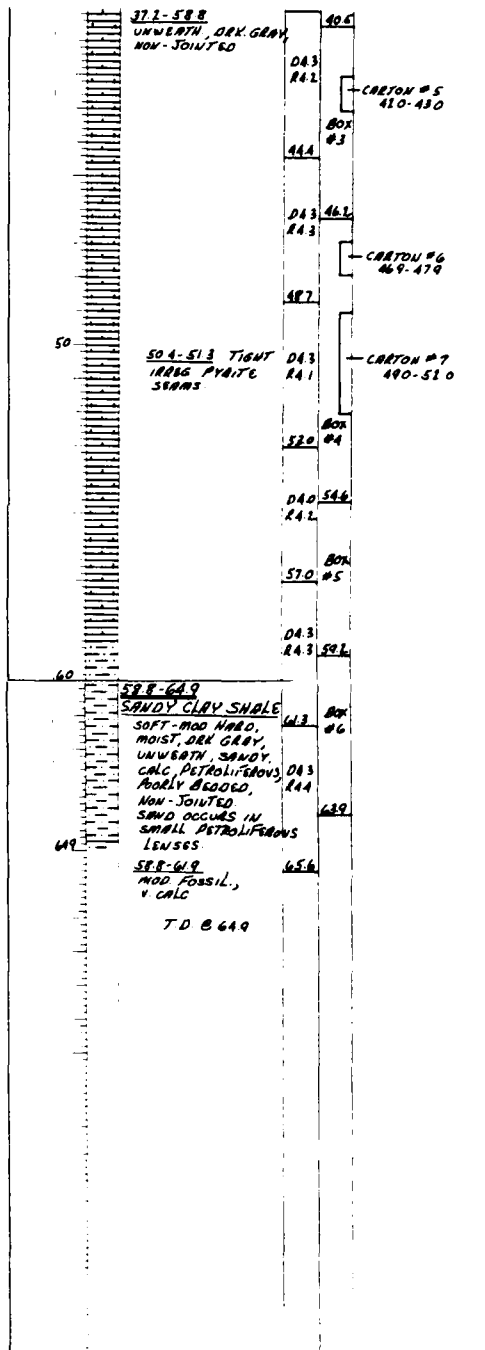
T D B 977

U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
DESIGNED BY	LANEPORT LAKE SAN GABRIEL RIVER, TEXAS		
DRAWN BY	LOGS OF BORINGS		
CHECKED BY	8A6C-551 VOLUME - II		
SUBMITTED BY	REVISION NO.	SPECIFICATIONS DATED	SEQUENCE NO.
ENGINEER		DRAWING NUMBER	SHEET NO. 41 OF 41

DRILLING LOG		SOUTHWESTERN		FORT WORTH DIST	
LANEPORT DAM SITE		STN 87701 &		USCG-C (GALV DIST)	
BNGC3F-553		A SMITH		3/25/68 312W/68	
295		16.1		55.6	
10		10-10		CLAY	
		LEAN (WEARS FAT),		SL SANDY, MED	
		STIFF, MOIST, DBK		BEN	
		10-30		CLAY	
		LEAN, SL SANDY,		CALC, MED STIFF,	
		MOIST, MED BEN		30-60	
		CLAY		SANDY, SL GRAVELLY,	
		NUMEROUS LIME NODS,		CALC, MED STIFF,	
		MOIST, MED BEN		60-115	
		CLAY		LEAN, SCAT. FINE	
		LIME NODS, CALC,		MED STIFF, MOIST,	
		TAN		90-115 Lower Pt.	
		115-145		CLAY	
		GRAVELLY (CHERT),		SANDY, CALC, MED	
		STIFF, MOIST, TAN		145-195	
		CLAY		V SANDY (FINE),	
		MED STIFF, DBK-		MOIST, TAN, CALC,	
		LOW-MED PLAS.		195-210	
		CLAY		LEAN, MED STIFF,	
		MOIST, TAN, CALC		210-230	
		CLAY		V CALC, MED STIFF,	
		MOIST, TAN-WHITE,		LOW-MED PLAS	
		230-295		GRAVEL	
		SL CLAYEY, MED.		DENSE, SATD, TAN,	
		CHERT		295-550	
		CALCAREOUS SHALE		355-411	
		V CALC, MOD HARD,		LT GRAY & BROWN,	
		MASSIVE, NON-		SLOWLY SLAKING,	
		SL WEATH, PYRITIC,		SLICKENSIDED, JOINTED,	
		295-394 NUMEROUS		WELL DEV SLICKS	
		& JOINTS LINED W/		PYRITE & PETROLEUM.	
		AVG DIP 30°		394-410 80° well	
		DEVELOPED SLICK,		BROKEN, PYRITIC,	
		NUMEROUS SMALL		SLICKS, ADJACENT	

50	411-550	BECOMES LESS	411-412	CARTON #2
		CALC. SOFT, MOD HARD,		
		MOIST, DBK GRAY,		
		POORLY BRACED,		
		SLICKS SLOWLY,		
		MOD, UNWEATH,		
		411-413 JOINTED		
		SLICKENSIDED		
		NUMEROUS INTER-		
		SECTING WELL		
		DEVELOPED SLICKS		
		411-441 70° well		
		DEVELOPED SLICK		
		LINED W/ DBK SOFT		
		BRACED MATL		
		& PETROLEUM (FAULT)		
		473-550 NON-		
		JOINTED, NON-SLICKS		
		510		
		Box #4		
		D46		
		R43		
		550		
		TD @ 550'		
		556 550		
		540-550		
		CARTON #5		

DRILLING LOG		SOUTHWESTERN		PORT WORTH DIST		Hole No. 896C-554	
LANEPORT DAM SIT.		F. AUGER, 6' CORE		MSL		FALLING 1500	
370 86000, &		USCE-C (GALV. LIST.)		896C-554		8 TMS NAME	
A. SMITH		1/9/68		1/10/68		490.96	
26.0		39.6		63.6		100%	
CLASSIFICATION OF MATERIAL		CLASSIFICATION OF MATERIAL		CLASSIFICATION OF MATERIAL		CLASSIFICATION OF MATERIAL	
00-10		CLAY		LEAN, MOIST, DRY, BROWN, W/ PLANT ROOTS.		A	
10-4.5		CLAY		LEAN, SL. SANDY, MED. STIFF, MOIST, DRY, BROWN.		B	
4.5-12.0		CLAY		SANDY, W/ SCAT. LIME NODS., MED. STIFF, MOIST, TAN, CALC.		C	
12.0-16.0		CLAY		SANDY, WEAKLY CON. W/ LIME (DIFFICULT TO PENETRATE W/ AUGER), DRY-MOIST, TAN, CALC.		D	
16.0-21.5		CLAY		V. GRAVELLY, SANDY, STIFF, MOIST, TAN, CALC.		E	
21.5-26.0		CLAY		V. GRAVELLY (FINE), NEARS A CLAYEY GRAVEL, SANDY, MED. STIFF, MOIST-WET, TAN.		F	
26.0-37.1		CALCAREOUS SHALE		V. CALC. SOFT, MOD. HARD, MOIST, POORLY BEDDED, SLAKES SLOWLY - MOD UPON EXPOSURE.		G	
37.1-40.1		CALCAREOUS SHALE		V. CALC. SOFT, MOD. HARD, MOIST, POORLY BEDDED, SLAKES SLOWLY - MOD UPON EXPOSURE.		H	



42.5
 44.3
 44.1
 CARTON #5
 410-430
 BOX
 0.3
 44.4
 44.3
 44.1
 CARTON #6
 469-479
 44.2
 44.1
 CARTON #7
 490-510
 BOX
 0.4
 44.0
 44.1
 BOX
 0.5
 44.1
 44.3
 44.2
 BOX
 0.6
 44.3
 44.4
 44.5

2

U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
DESIGNED BY:	LANEPORT LAKE SAN GABRIEL RIVER, TEXAS		
DRAWN BY:	LOGS OF BORINGS		
CHECKED BY:	8A6C-554		
SUBMITTED BY:	VOLUME - II		
ENGINEER:	INVITATION NO.	SPECIFICATIONS DATED	SEQUENCE NO.
		DRAWING NUMBER	SHEET NO.
			43 OF 43

L-657
 GRAY CLAY SHALE
 med. calc., soft-
 med. mod. moist,
 gray, unweathered,
 finely bedded,
 jointed,
 breaks med. upon
 fracture,
 petroliferous.

L-656
 calc., mod. foss.

L-655
 and occurs in
 small petroliferous
 lenses.

TO ACCOMPANY FINAL FOUNDATION REPORT PLATE 90

BY NO	ACTION	DATE	DESCRIPTION OF ACTION
U. S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
DESIGNED BY	LANEPORT LAKE		
JLM	SAN GABRIEL RIVER, TEXAS		
DRAWN BY	LOGS OF BORINGS		
CHECKED BY	8A6C - 556		
JLM	VOLUME - II		
SUBMITTED BY	INVITATION NO SPECIFICATIONS DATED DRAWING NUMBER		
ENGINEER	SHEET NO \$9.0Y 68		
	SEQUENCE NO 45		

Plate No. 30A-558

SHEET 1

OF 1 SHEETS

LOCATION OF BORE
 DISTANCE
 DATE
 NAME
 NO. OF BORINGS
 DEPTH
 DETERMINED
 7.0' x 6.0' x 7.0' x 6.0'
 555.6
 N/A

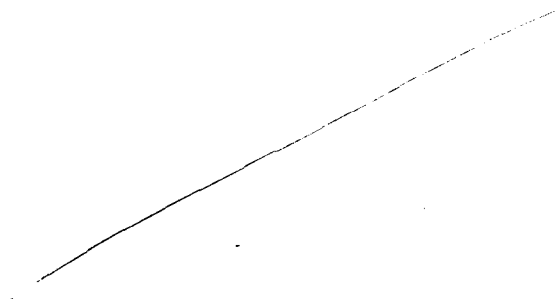
REMARKS

(Please print name, rank, grade, and organization of person making this report.)

Based To 20'
 ALL MEASUREMENTS
 FROM TOP CASING

DESIGNED BY:		DRAWN BY:		CHECKED BY:		SUBMITTED BY:		INVESTIGATION NO.		SPECIFICATIONS DATED:		SEQUENCE NO.	
JLM		JLM		JLM		JLM		30A-557 & 30A-558		46 OF 58		46	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS LANEPORTE LAKE SAN GABRIEL RIVER, TEXAS LOGS OF BORINGS 30A-557 & 30A-558 VOLUME - II													
DRAWING NUMBER				SHEET NO				46 OF 58		46			

[illegible]



DESIGNED BY: JLM		LANEPORT LAKE SAN GABRIEL RIVER, TEXAS	
DRAWN BY:		LOGS OF BORINGS	
CHECKED BY: JLM		8A6C-3F-559 VOLUME - II	
SUBMITTED BY: ENGINEER: <i>Quicker</i>		INVITATION NO. 1000-1-1 SPECIFICATIONS DATED 10-1-58	
		DRAWING NUMBER	SEQUENCE NO. 47
		SHEET NO. 47 OF 58	

TO ACCOMPANY FINAL FOUNDATION REPORT PLATE 92

[illegible]

~~TO ACCOMPANY FINAL FOUR~~

AD-A141 542

GRANGER LAKE EMBANKMENT-OUTLET WORKS-SPILLWAY VOLUME 2

(U) ARMY ENGINEER DISTRICT FORT WORTH TX G M RUEDE

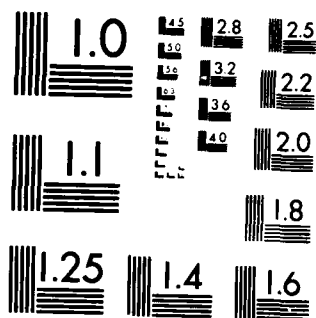
AUG 83

3/3

UNCLASSIFIED

F/G 13/13 NL

END
DATE
FILMED
7 84
DTIC

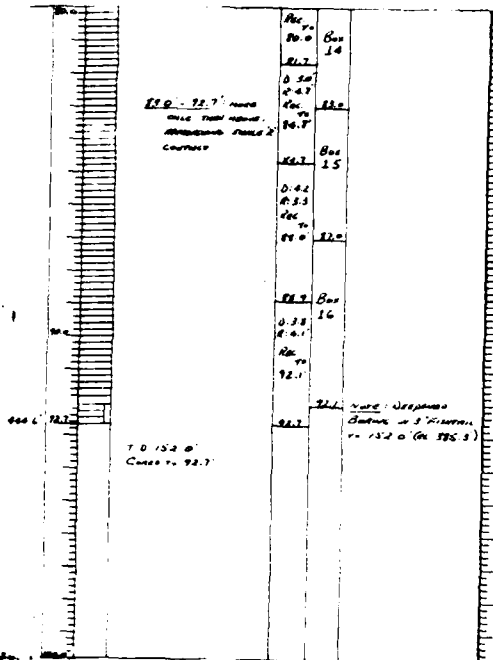


MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

Borehole Log		Geological Notes	
1. LOCATION	2. DATE	3. TIME	4. SURVEY
5. HOLE NO.	6. HOLE DEPTH	7. HOLE DIAMETER	8. HOLE TYPE
9. HOLE LOCATION	10. HOLE DEPTH	11. HOLE DIAMETER	12. HOLE TYPE
13. HOLE LOCATION	14. HOLE DEPTH	15. HOLE DIAMETER	16. HOLE TYPE
17. HOLE LOCATION	18. HOLE DEPTH	19. HOLE DIAMETER	20. HOLE TYPE
21. HOLE LOCATION	22. HOLE DEPTH	23. HOLE DIAMETER	24. HOLE TYPE
25. HOLE LOCATION	26. HOLE DEPTH	27. HOLE DIAMETER	28. HOLE TYPE
29. HOLE LOCATION	30. HOLE DEPTH	31. HOLE DIAMETER	32. HOLE TYPE
33. HOLE LOCATION	34. HOLE DEPTH	35. HOLE DIAMETER	36. HOLE TYPE
37. HOLE LOCATION	38. HOLE DEPTH	39. HOLE DIAMETER	40. HOLE TYPE
41. HOLE LOCATION	42. HOLE DEPTH	43. HOLE DIAMETER	44. HOLE TYPE
45. HOLE LOCATION	46. HOLE DEPTH	47. HOLE DIAMETER	48. HOLE TYPE
49. HOLE LOCATION	50. HOLE DEPTH	51. HOLE DIAMETER	52. HOLE TYPE
53. HOLE LOCATION	54. HOLE DEPTH	55. HOLE DIAMETER	56. HOLE TYPE
57. HOLE LOCATION	58. HOLE DEPTH	59. HOLE DIAMETER	60. HOLE TYPE
61. HOLE LOCATION	62. HOLE DEPTH	63. HOLE DIAMETER	64. HOLE TYPE
65. HOLE LOCATION	66. HOLE DEPTH	67. HOLE DIAMETER	68. HOLE TYPE
69. HOLE LOCATION	70. HOLE DEPTH	71. HOLE DIAMETER	72. HOLE TYPE
73. HOLE LOCATION	74. HOLE DEPTH	75. HOLE DIAMETER	76. HOLE TYPE
77. HOLE LOCATION	78. HOLE DEPTH	79. HOLE DIAMETER	80. HOLE TYPE
81. HOLE LOCATION	82. HOLE DEPTH	83. HOLE DIAMETER	84. HOLE TYPE
85. HOLE LOCATION	86. HOLE DEPTH	87. HOLE DIAMETER	88. HOLE TYPE
89. HOLE LOCATION	90. HOLE DEPTH	91. HOLE DIAMETER	92. HOLE TYPE
93. HOLE LOCATION	94. HOLE DEPTH	95. HOLE DIAMETER	96. HOLE TYPE
97. HOLE LOCATION	98. HOLE DEPTH	99. HOLE DIAMETER	100. HOLE TYPE

101. HOLE LOCATION	102. HOLE DEPTH	103. HOLE DIAMETER	104. HOLE TYPE
105. HOLE LOCATION	106. HOLE DEPTH	107. HOLE DIAMETER	108. HOLE TYPE
109. HOLE LOCATION	110. HOLE DEPTH	111. HOLE DIAMETER	112. HOLE TYPE
113. HOLE LOCATION	114. HOLE DEPTH	115. HOLE DIAMETER	116. HOLE TYPE
117. HOLE LOCATION	118. HOLE DEPTH	119. HOLE DIAMETER	120. HOLE TYPE
121. HOLE LOCATION	122. HOLE DEPTH	123. HOLE DIAMETER	124. HOLE TYPE
125. HOLE LOCATION	126. HOLE DEPTH	127. HOLE DIAMETER	128. HOLE TYPE
129. HOLE LOCATION	130. HOLE DEPTH	131. HOLE DIAMETER	132. HOLE TYPE
133. HOLE LOCATION	134. HOLE DEPTH	135. HOLE DIAMETER	136. HOLE TYPE
137. HOLE LOCATION	138. HOLE DEPTH	139. HOLE DIAMETER	140. HOLE TYPE
141. HOLE LOCATION	142. HOLE DEPTH	143. HOLE DIAMETER	144. HOLE TYPE
145. HOLE LOCATION	146. HOLE DEPTH	147. HOLE DIAMETER	148. HOLE TYPE
149. HOLE LOCATION	150. HOLE DEPTH	151. HOLE DIAMETER	152. HOLE TYPE
153. HOLE LOCATION	154. HOLE DEPTH	155. HOLE DIAMETER	156. HOLE TYPE
157. HOLE LOCATION	158. HOLE DEPTH	159. HOLE DIAMETER	160. HOLE TYPE
161. HOLE LOCATION	162. HOLE DEPTH	163. HOLE DIAMETER	164. HOLE TYPE
165. HOLE LOCATION	166. HOLE DEPTH	167. HOLE DIAMETER	168. HOLE TYPE
169. HOLE LOCATION	170. HOLE DEPTH	171. HOLE DIAMETER	172. HOLE TYPE
173. HOLE LOCATION	174. HOLE DEPTH	175. HOLE DIAMETER	176. HOLE TYPE
177. HOLE LOCATION	178. HOLE DEPTH	179. HOLE DIAMETER	180. HOLE TYPE
181. HOLE LOCATION	182. HOLE DEPTH	183. HOLE DIAMETER	184. HOLE TYPE
185. HOLE LOCATION	186. HOLE DEPTH	187. HOLE DIAMETER	188. HOLE TYPE
189. HOLE LOCATION	190. HOLE DEPTH	191. HOLE DIAMETER	192. HOLE TYPE
193. HOLE LOCATION	194. HOLE DEPTH	195. HOLE DIAMETER	196. HOLE TYPE
197. HOLE LOCATION	198. HOLE DEPTH	199. HOLE DIAMETER	200. HOLE TYPE

201. HOLE LOCATION	202. HOLE DEPTH	203. HOLE DIAMETER	204. HOLE TYPE
205. HOLE LOCATION	206. HOLE DEPTH	207. HOLE DIAMETER	208. HOLE TYPE
209. HOLE LOCATION	210. HOLE DEPTH	211. HOLE DIAMETER	212. HOLE TYPE
213. HOLE LOCATION	214. HOLE DEPTH	215. HOLE DIAMETER	216. HOLE TYPE
217. HOLE LOCATION	218. HOLE DEPTH	219. HOLE DIAMETER	220. HOLE TYPE
221. HOLE LOCATION	222. HOLE DEPTH	223. HOLE DIAMETER	224. HOLE TYPE
225. HOLE LOCATION	226. HOLE DEPTH	227. HOLE DIAMETER	228. HOLE TYPE
229. HOLE LOCATION	230. HOLE DEPTH	231. HOLE DIAMETER	232. HOLE TYPE
233. HOLE LOCATION	234. HOLE DEPTH	235. HOLE DIAMETER	236. HOLE TYPE
237. HOLE LOCATION	238. HOLE DEPTH	239. HOLE DIAMETER	240. HOLE TYPE
241. HOLE LOCATION	242. HOLE DEPTH	243. HOLE DIAMETER	244. HOLE TYPE
245. HOLE LOCATION	246. HOLE DEPTH	247. HOLE DIAMETER	248. HOLE TYPE
249. HOLE LOCATION	250. HOLE DEPTH	251. HOLE DIAMETER	252. HOLE TYPE
253. HOLE LOCATION	254. HOLE DEPTH	255. HOLE DIAMETER	256. HOLE TYPE
257. HOLE LOCATION	258. HOLE DEPTH	259. HOLE DIAMETER	260. HOLE TYPE
261. HOLE LOCATION	262. HOLE DEPTH	263. HOLE DIAMETER	264. HOLE TYPE
265. HOLE LOCATION	266. HOLE DEPTH	267. HOLE DIAMETER	268. HOLE TYPE
269. HOLE LOCATION	270. HOLE DEPTH	271. HOLE DIAMETER	272. HOLE TYPE
273. HOLE LOCATION	274. HOLE DEPTH	275. HOLE DIAMETER	276. HOLE TYPE
277. HOLE LOCATION	278. HOLE DEPTH	279. HOLE DIAMETER	280. HOLE TYPE
281. HOLE LOCATION	282. HOLE DEPTH	283. HOLE DIAMETER	284. HOLE TYPE
285. HOLE LOCATION	286. HOLE DEPTH	287. HOLE DIAMETER	288. HOLE TYPE
289. HOLE LOCATION	290. HOLE DEPTH	291. HOLE DIAMETER	292. HOLE TYPE
293. HOLE LOCATION	294. HOLE DEPTH	295. HOLE DIAMETER	296. HOLE TYPE
297. HOLE LOCATION	298. HOLE DEPTH	299. HOLE DIAMETER	300. HOLE TYPE



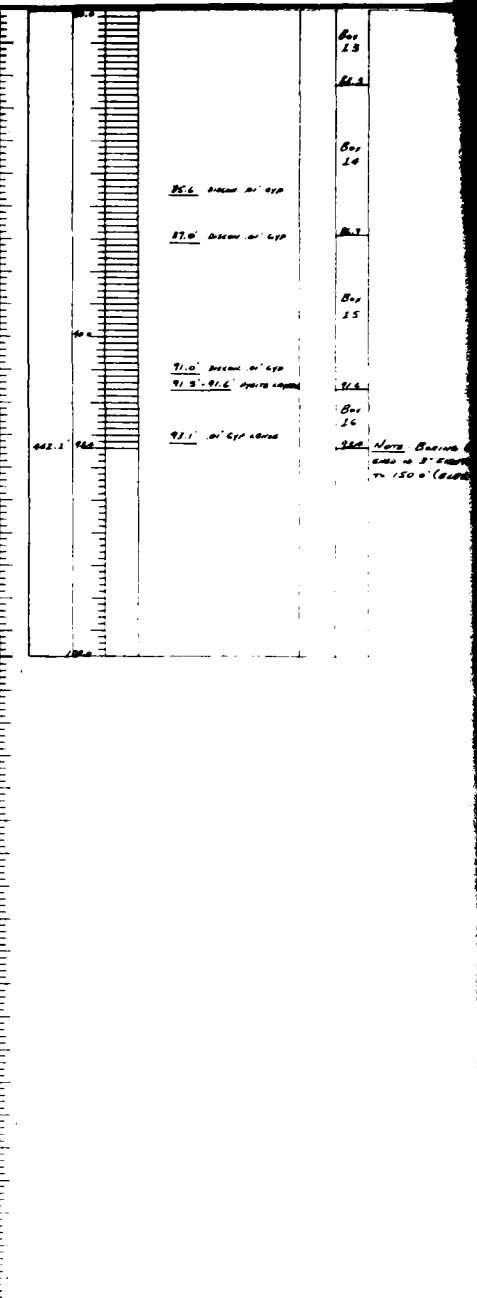
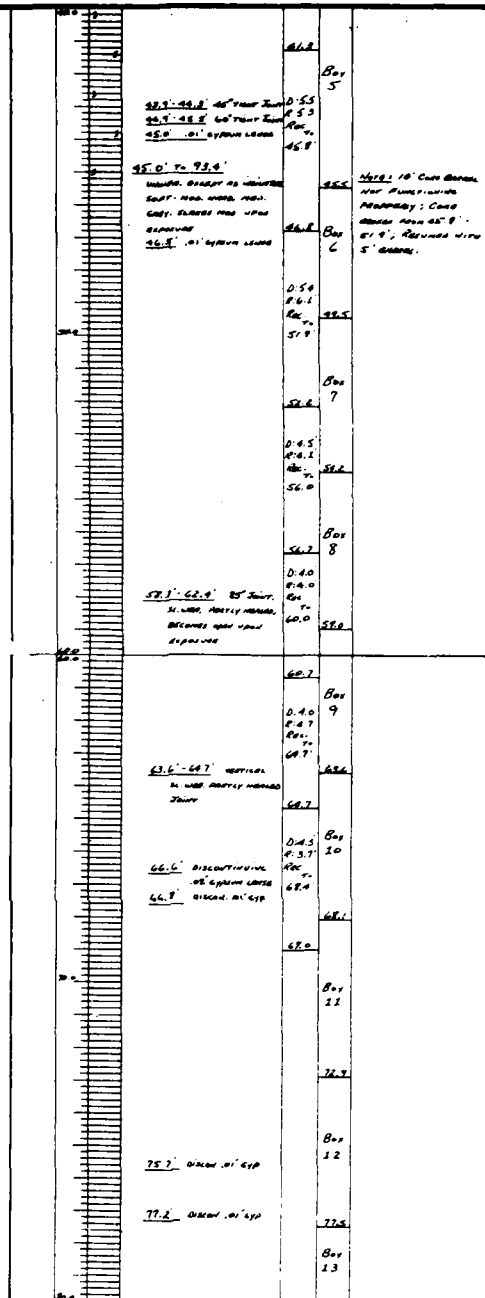
2

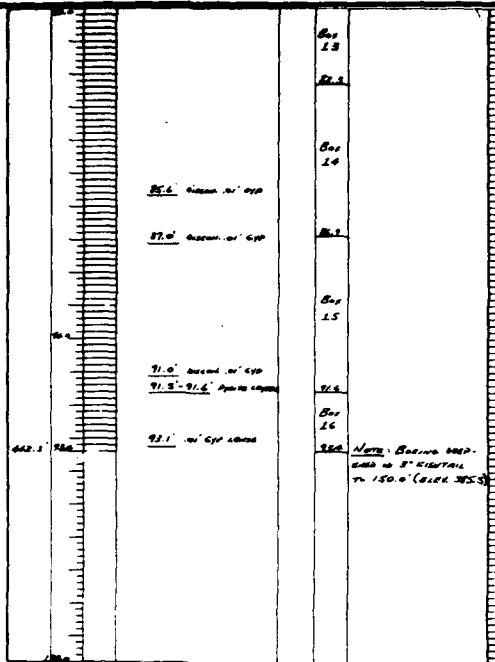
ACCOMPANY FINAL FOUNDATION REPORT

PLATE 94

DESIGNED BY:		JLM	
DRAWN BY:		JLM	
CHECKED BY:		JLM	
SUBMITTED BY:		JLM	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
LANEPORTE LAKE SAN GABRIEL RIVER, TEXAS			
LOGS OF BORINGS			
8A6C-3F-561			
VOLUME - II			
INVIATION NO. (100-100-100)		SEQUENCE NO.	
SPECIFICATIONS DATED		NO.	
DRAWING NUMBER		SHEET NO.	
49 OF 58		49	

BUILDING LOG		DATE: 10/20/52	
SND		END	
LONGEST DAY		10/20/52	
1. DISTANCE FROM		2. DISTANCE FROM	
3. DISTANCE FROM		4. DISTANCE FROM	
5. DISTANCE FROM		6. DISTANCE FROM	
7. DISTANCE FROM		8. DISTANCE FROM	
9. DISTANCE FROM		10. DISTANCE FROM	
11. DISTANCE FROM		12. DISTANCE FROM	
13. DISTANCE FROM		14. DISTANCE FROM	
15. DISTANCE FROM		16. DISTANCE FROM	
17. DISTANCE FROM		18. DISTANCE FROM	
19. DISTANCE FROM		20. DISTANCE FROM	
21. DISTANCE FROM		22. DISTANCE FROM	
23. DISTANCE FROM		24. DISTANCE FROM	
25. DISTANCE FROM		26. DISTANCE FROM	
27. DISTANCE FROM		28. DISTANCE FROM	
29. DISTANCE FROM		30. DISTANCE FROM	
31. DISTANCE FROM		32. DISTANCE FROM	
33. DISTANCE FROM		34. DISTANCE FROM	
35. DISTANCE FROM		36. DISTANCE FROM	
37. DISTANCE FROM		38. DISTANCE FROM	
39. DISTANCE FROM		40. DISTANCE FROM	
41. DISTANCE FROM		42. DISTANCE FROM	
43. DISTANCE FROM		44. DISTANCE FROM	
45. DISTANCE FROM		46. DISTANCE FROM	
47. DISTANCE FROM		48. DISTANCE FROM	
49. DISTANCE FROM		50. DISTANCE FROM	
51. DISTANCE FROM		52. DISTANCE FROM	
53. DISTANCE FROM		54. DISTANCE FROM	
55. DISTANCE FROM		56. DISTANCE FROM	
57. DISTANCE FROM		58. DISTANCE FROM	
59. DISTANCE FROM		60. DISTANCE FROM	
61. DISTANCE FROM		62. DISTANCE FROM	
63. DISTANCE FROM		64. DISTANCE FROM	
65. DISTANCE FROM		66. DISTANCE FROM	
67. DISTANCE FROM		68. DISTANCE FROM	
69. DISTANCE FROM		70. DISTANCE FROM	
71. DISTANCE FROM		72. DISTANCE FROM	
73. DISTANCE FROM		74. DISTANCE FROM	
75. DISTANCE FROM		76. DISTANCE FROM	
77. DISTANCE FROM		78. DISTANCE FROM	
79. DISTANCE FROM		80. DISTANCE FROM	
81. DISTANCE FROM		82. DISTANCE FROM	
83. DISTANCE FROM		84. DISTANCE FROM	
85. DISTANCE FROM		86. DISTANCE FROM	
87. DISTANCE FROM		88. DISTANCE FROM	
89. DISTANCE FROM		90. DISTANCE FROM	
91. DISTANCE FROM		92. DISTANCE FROM	
93. DISTANCE FROM		94. DISTANCE FROM	
95. DISTANCE FROM		96. DISTANCE FROM	
97. DISTANCE FROM		98. DISTANCE FROM	
99. DISTANCE FROM		100. DISTANCE FROM	





Note: Borehole depth
measured to 3" diameter
to 150.0' (darker section)

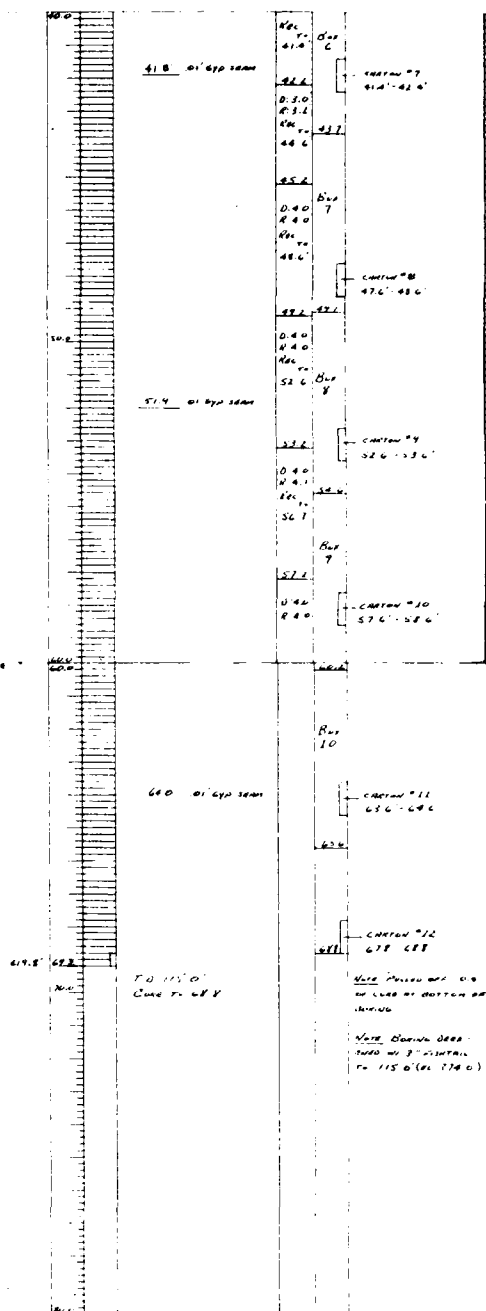
2

ACCOMPANY FINAL FOUNDATION REPORT

PLATE 95

DESIGNED BY: JLM		DRAWN BY: JLM		CHECKED BY: JLM		SUBMITTED BY: JLM	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS		LANEPORT LAKE SAN GABRIEL RIVER, TEXAS		LOGS OF BORINGS 8A6C-3F-562 VOLUME - II		INVESTIGATION NO.	
SPECIFICATIONS DATED		DRAWING NUMBER		SHEET NO. 50 OF 50		SEQUENCE NO. 50	

Drilling Log	Notes	Drill Log	Notes
PROJECT: LAUREL DRIVE	315(1)	DATE: 10/1/77	10' (10' 0")
LOCATION: LAUREL DRIVE		11' (11' 0")	11' 0" (11' 0")
1. HOLE NO. 1		12' (12' 0")	12' 0" (12' 0")
2. DATE OF DRILLING 10/1/77		13' (13' 0")	13' 0" (13' 0")
3. HOLE DEPTH 107.0		14' (14' 0")	14' 0" (14' 0")
4. HOLE DIAMETER 10.0		15' (15' 0")	15' 0" (15' 0")
5. HOLE TYPE 10.0		16' (16' 0")	16' 0" (16' 0")
6. HOLE LOCATION 10.0		17' (17' 0")	17' 0" (17' 0")
7. HOLE ELEVATION 10.0		18' (18' 0")	18' 0" (18' 0")
8. HOLE DIRECTION 10.0		19' (19' 0")	19' 0" (19' 0")
9. HOLE COMMENTS 10.0		20' (20' 0")	20' 0" (20' 0")
10. HOLE LOG 10.0		21' (21' 0")	21' 0" (21' 0")
11. HOLE LOG 10.0		22' (22' 0")	22' 0" (22' 0")
12. HOLE LOG 10.0		23' (23' 0")	23' 0" (23' 0")
13. HOLE LOG 10.0		24' (24' 0")	24' 0" (24' 0")
14. HOLE LOG 10.0		25' (25' 0")	25' 0" (25' 0")
15. HOLE LOG 10.0		26' (26' 0")	26' 0" (26' 0")
16. HOLE LOG 10.0		27' (27' 0")	27' 0" (27' 0")
17. HOLE LOG 10.0		28' (28' 0")	28' 0" (28' 0")
18. HOLE LOG 10.0		29' (29' 0")	29' 0" (29' 0")
19. HOLE LOG 10.0		30' (30' 0")	30' 0" (30' 0")
20. HOLE LOG 10.0		31' (31' 0")	31' 0" (31' 0")
21. HOLE LOG 10.0		32' (32' 0")	32' 0" (32' 0")
22. HOLE LOG 10.0		33' (33' 0")	33' 0" (33' 0")
23. HOLE LOG 10.0		34' (34' 0")	34' 0" (34' 0")
24. HOLE LOG 10.0		35' (35' 0")	35' 0" (35' 0")
25. HOLE LOG 10.0		36' (36' 0")	36' 0" (36' 0")
26. HOLE LOG 10.0		37' (37' 0")	37' 0" (37' 0")
27. HOLE LOG 10.0		38' (38' 0")	38' 0" (38' 0")
28. HOLE LOG 10.0		39' (39' 0")	39' 0" (39' 0")
29. HOLE LOG 10.0		40' (40' 0")	40' 0" (40' 0")
30. HOLE LOG 10.0		41' (41' 0")	41' 0" (41' 0")
31. HOLE LOG 10.0		42' (42' 0")	42' 0" (42' 0")
32. HOLE LOG 10.0		43' (43' 0")	43' 0" (43' 0")
33. HOLE LOG 10.0		44' (44' 0")	44' 0" (44' 0")
34. HOLE LOG 10.0		45' (45' 0")	45' 0" (45' 0")
35. HOLE LOG 10.0		46' (46' 0")	46' 0" (46' 0")
36. HOLE LOG 10.0		47' (47' 0")	47' 0" (47' 0")
37. HOLE LOG 10.0		48' (48' 0")	48' 0" (48' 0")
38. HOLE LOG 10.0		49' (49' 0")	49' 0" (49' 0")
39. HOLE LOG 10.0		50' (50' 0")	50' 0" (50' 0")
40. HOLE LOG 10.0		51' (51' 0")	51' 0" (51' 0")
41. HOLE LOG 10.0		52' (52' 0")	52' 0" (52' 0")
42. HOLE LOG 10.0		53' (53' 0")	53' 0" (53' 0")
43. HOLE LOG 10.0		54' (54' 0")	54' 0" (54' 0")
44. HOLE LOG 10.0		55' (55' 0")	55' 0" (55' 0")
45. HOLE LOG 10.0		56' (56' 0")	56' 0" (56' 0")
46. HOLE LOG 10.0		57' (57' 0")	57' 0" (57' 0")
47. HOLE LOG 10.0		58' (58' 0")	58' 0" (58' 0")
48. HOLE LOG 10.0		59' (59' 0")	59' 0" (59' 0")
49. HOLE LOG 10.0		60' (60' 0")	60' 0" (60' 0")
50. HOLE LOG 10.0		61' (61' 0")	61' 0" (61' 0")
51. HOLE LOG 10.0		62' (62' 0")	62' 0" (62' 0")
52. HOLE LOG 10.0		63' (63' 0")	63' 0" (63' 0")
53. HOLE LOG 10.0		64' (64' 0")	64' 0" (64' 0")
54. HOLE LOG 10.0		65' (65' 0")	65' 0" (65' 0")
55. HOLE LOG 10.0		66' (66' 0")	66' 0" (66' 0")
56. HOLE LOG 10.0		67' (67' 0")	67' 0" (67' 0")
57. HOLE LOG 10.0		68' (68' 0")	68' 0" (68' 0")
58. HOLE LOG 10.0		69' (69' 0")	69' 0" (69' 0")
59. HOLE LOG 10.0		70' (70' 0")	70' 0" (70' 0")
60. HOLE LOG 10.0		71' (71' 0")	71' 0" (71' 0")
61. HOLE LOG 10.0		72' (72' 0")	72' 0" (72' 0")
62. HOLE LOG 10.0		73' (73' 0")	73' 0" (73' 0")
63. HOLE LOG 10.0		74' (74' 0")	74' 0" (74' 0")
64. HOLE LOG 10.0		75' (75' 0")	75' 0" (75' 0")
65. HOLE LOG 10.0		76' (76' 0")	76' 0" (76' 0")
66. HOLE LOG 10.0		77' (77' 0")	77' 0" (77' 0")
67. HOLE LOG 10.0		78' (78' 0")	78' 0" (78' 0")
68. HOLE LOG 10.0		79' (79' 0")	79' 0" (79' 0")
69. HOLE LOG 10.0		80' (80' 0")	80' 0" (80' 0")
70. HOLE LOG 10.0		81' (81' 0")	81' 0" (81' 0")
71. HOLE LOG 10.0		82' (82' 0")	82' 0" (82' 0")
72. HOLE LOG 10.0		83' (83' 0")	83' 0" (83' 0")
73. HOLE LOG 10.0		84' (84' 0")	84' 0" (84' 0")
74. HOLE LOG 10.0		85' (85' 0")	85' 0" (85' 0")
75. HOLE LOG 10.0		86' (86' 0")	86' 0" (86' 0")
76. HOLE LOG 10.0		87' (87' 0")	87' 0" (87' 0")
77. HOLE LOG 10.0		88' (88' 0")	88' 0" (88' 0")
78. HOLE LOG 10.0		89' (89' 0")	89' 0" (89' 0")
79. HOLE LOG 10.0		90' (90' 0")	90' 0" (90' 0")
80. HOLE LOG 10.0		91' (91' 0")	91' 0" (91' 0")
81. HOLE LOG 10.0		92' (92' 0")	92' 0" (92' 0")
82. HOLE LOG 10.0		93' (93' 0")	93' 0" (93' 0")
83. HOLE LOG 10.0		94' (94' 0")	94' 0" (94' 0")
84. HOLE LOG 10.0		95' (95' 0")	95' 0" (95' 0")
85. HOLE LOG 10.0		96' (96' 0")	96' 0" (96' 0")
86. HOLE LOG 10.0		97' (97' 0")	97' 0" (97' 0")
87. HOLE LOG 10.0		98' (98' 0")	98' 0" (98' 0")
88. HOLE LOG 10.0		99' (99' 0")	99' 0" (99' 0")
89. HOLE LOG 10.0		100' (100' 0")	100' 0" (100' 0")



DESIGNED BY: J.L.H.		LANEPORT LAKE SAN GABRIEL RIVER, TEXAS	
DRAWN BY:		LOGS OF BORINGS	
CHECKED BY: J.L.H.		8A6C-3F-563	
		VOLUME - II	
SUBMITTED BY: <i>Architect</i>		INVITATION NO. <i>CAROLING 87-61</i> <i>CD-105</i>	
ENGINEER:		SPECIFICATIONS DATED <i>APR. 1972</i>	
		DRAWING NUMBER	SHEET NO. 31 OF 55
			SEQUENCE NO. 51

TO ACCOMPANY FINAL FOUNDATION REPORT

PLATE 96

1. 100
 2. 100
 3. 100
 4. 100
 5. 100
 6. 100
 7. 100
 8. 100
 9. 100
 10. 100
 11. 100
 12. 100
 13. 100
 14. 100
 15. 100
 16. 100
 17. 100
 18. 100
 19. 100
 20. 100
 21. 100
 22. 100
 23. 100
 24. 100
 25. 100
 26. 100
 27. 100
 28. 100
 29. 100
 30. 100
 31. 100
 32. 100
 33. 100
 34. 100
 35. 100
 36. 100
 37. 100
 38. 100
 39. 100
 40. 100
 41. 100
 42. 100
 43. 100
 44. 100
 45. 100
 46. 100
 47. 100
 48. 100
 49. 100
 50. 100
 51. 100
 52. 100
 53. 100
 54. 100
 55. 100
 56. 100
 57. 100
 58. 100
 59. 100
 60. 100
 61. 100
 62. 100
 63. 100
 64. 100
 65. 100
 66. 100
 67. 100
 68. 100
 69. 100
 70. 100
 71. 100
 72. 100
 73. 100
 74. 100
 75. 100
 76. 100
 77. 100
 78. 100
 79. 100
 80. 100
 81. 100
 82. 100
 83. 100
 84. 100
 85. 100
 86. 100
 87. 100
 88. 100
 89. 100
 90. 100
 91. 100
 92. 100
 93. 100
 94. 100
 95. 100
 96. 100
 97. 100
 98. 100
 99. 100
 100. 100

2

DESIGNED BY: JLM		LANEPORT LAKE SAN GABRIEL RIVER, TEXAS	
DRAWN BY:		LOGS OF BORINGS	
CHECKED BY: JLM		8A6C-564 & 8A6C-565	
SUBMITTED BY:		VOLUME - II	
ENGINEER: <i>Quishell</i>		INVITATION NO. 100-1063-70-1100-11	SEQUENCE NO.
		DRAWING NUMBER	SHEET NO. 52
			32 OF 50

A

DRILLING LOG		WATER		TOTAL ELEVATION		Plate No. 8A6C-566	
1. LOCATION		2. DATE		3. TIME		4. SHEET	
5. NAME OF DRILLER		6. NAME OF DRILLER		7. NAME OF DRILLER		8. NAME OF DRILLER	
9. NAME OF DRILLER		10. NAME OF DRILLER		11. NAME OF DRILLER		12. NAME OF DRILLER	
13. NAME OF DRILLER		14. NAME OF DRILLER		15. NAME OF DRILLER		16. NAME OF DRILLER	
17. NAME OF DRILLER		18. NAME OF DRILLER		19. NAME OF DRILLER		20. NAME OF DRILLER	
21. NAME OF DRILLER		22. NAME OF DRILLER		23. NAME OF DRILLER		24. NAME OF DRILLER	
25. NAME OF DRILLER		26. NAME OF DRILLER		27. NAME OF DRILLER		28. NAME OF DRILLER	
29. NAME OF DRILLER		30. NAME OF DRILLER		31. NAME OF DRILLER		32. NAME OF DRILLER	
33. NAME OF DRILLER		34. NAME OF DRILLER		35. NAME OF DRILLER		36. NAME OF DRILLER	
37. NAME OF DRILLER		38. NAME OF DRILLER		39. NAME OF DRILLER		40. NAME OF DRILLER	
41. NAME OF DRILLER		42. NAME OF DRILLER		43. NAME OF DRILLER		44. NAME OF DRILLER	
45. NAME OF DRILLER		46. NAME OF DRILLER		47. NAME OF DRILLER		48. NAME OF DRILLER	
49. NAME OF DRILLER		50. NAME OF DRILLER		51. NAME OF DRILLER		52. NAME OF DRILLER	
53. NAME OF DRILLER		54. NAME OF DRILLER		55. NAME OF DRILLER		56. NAME OF DRILLER	
57. NAME OF DRILLER		58. NAME OF DRILLER		59. NAME OF DRILLER		60. NAME OF DRILLER	
61. NAME OF DRILLER		62. NAME OF DRILLER		63. NAME OF DRILLER		64. NAME OF DRILLER	
65. NAME OF DRILLER		66. NAME OF DRILLER		67. NAME OF DRILLER		68. NAME OF DRILLER	
69. NAME OF DRILLER		70. NAME OF DRILLER		71. NAME OF DRILLER		72. NAME OF DRILLER	
73. NAME OF DRILLER		74. NAME OF DRILLER		75. NAME OF DRILLER		76. NAME OF DRILLER	
77. NAME OF DRILLER		78. NAME OF DRILLER		79. NAME OF DRILLER		80. NAME OF DRILLER	
81. NAME OF DRILLER		82. NAME OF DRILLER		83. NAME OF DRILLER		84. NAME OF DRILLER	
85. NAME OF DRILLER		86. NAME OF DRILLER		87. NAME OF DRILLER		88. NAME OF DRILLER	
89. NAME OF DRILLER		90. NAME OF DRILLER		91. NAME OF DRILLER		92. NAME OF DRILLER	
93. NAME OF DRILLER		94. NAME OF DRILLER		95. NAME OF DRILLER		96. NAME OF DRILLER	
97. NAME OF DRILLER		98. NAME OF DRILLER		99. NAME OF DRILLER		100. NAME OF DRILLER	

NO.	NO.	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS				
DESIGNED BY:		LANEPORT LAKE SAN GABRIEL RIVER, TEXAS		
DRAWN BY:		LOGS OF BORINGS		
CHECKED BY:		8A6C-566		
SUBMITTED BY:		VOLUME - II		
SPECIFICATIONS DATED: MAY, 1972		SEQUENCE NO.		
DRAWING NUMBER		SHEET NO.		53
53 OF 58				

9 ACCOMPANY FINAL FOUNDATION REPORT

PLATE 98

[illegible]

DELLING LOG		DATE		TIME	
1. NAME		2. LOCATION		3. DATE	
4. TIME		5. LOCATION		6. DATE	
7. NAME		8. LOCATION		9. DATE	
10. NAME		11. LOCATION		12. DATE	
13. NAME		14. LOCATION		15. DATE	
16. NAME		17. LOCATION		18. DATE	
19. NAME		20. LOCATION		21. DATE	
22. NAME		23. LOCATION		24. DATE	
25. NAME		26. LOCATION		27. DATE	
28. NAME		29. LOCATION		30. DATE	
31. NAME		32. LOCATION		33. DATE	
34. NAME		35. LOCATION		36. DATE	
37. NAME		38. LOCATION		39. DATE	
40. NAME		41. LOCATION		42. DATE	
43. NAME		44. LOCATION		45. DATE	
46. NAME		47. LOCATION		48. DATE	
49. NAME		50. LOCATION		51. DATE	
52. NAME		53. LOCATION		54. DATE	
55. NAME		56. LOCATION		57. DATE	
58. NAME		59. LOCATION		60. DATE	
61. NAME		62. LOCATION		63. DATE	
64. NAME		65. LOCATION		66. DATE	
67. NAME		68. LOCATION		69. DATE	
70. NAME		71. LOCATION		72. DATE	
73. NAME		74. LOCATION		75. DATE	
76. NAME		77. LOCATION		78. DATE	
79. NAME		80. LOCATION		81. DATE	
82. NAME		83. LOCATION		84. DATE	
85. NAME		86. LOCATION		87. DATE	
88. NAME		89. LOCATION		90. DATE	
91. NAME		92. LOCATION		93. DATE	
94. NAME		95. LOCATION		96. DATE	
97. NAME		98. LOCATION		99. DATE	
100. NAME		101. LOCATION		102. DATE	

DESTINATION LOG		TIME	DATE
1. AIRCRAFT	2. AIRCRAFT TYPE	3. AIRCRAFT NO.	4. AIRCRAFT REG.
5. AIRCRAFT TYPE	6. AIRCRAFT NO.	7. AIRCRAFT REG.	8. AIRCRAFT TYPE
9. AIRCRAFT TYPE	10. AIRCRAFT NO.	11. AIRCRAFT REG.	12. AIRCRAFT TYPE
13. AIRCRAFT TYPE	14. AIRCRAFT NO.	15. AIRCRAFT REG.	16. AIRCRAFT TYPE
17. AIRCRAFT TYPE	18. AIRCRAFT NO.	19. AIRCRAFT REG.	20. AIRCRAFT TYPE
21. AIRCRAFT TYPE	22. AIRCRAFT NO.	23. AIRCRAFT REG.	24. AIRCRAFT TYPE
25. AIRCRAFT TYPE	26. AIRCRAFT NO.	27. AIRCRAFT REG.	28. AIRCRAFT TYPE
29. AIRCRAFT TYPE	30. AIRCRAFT NO.	31. AIRCRAFT REG.	32. AIRCRAFT TYPE
33. AIRCRAFT TYPE	34. AIRCRAFT NO.	35. AIRCRAFT REG.	36. AIRCRAFT TYPE
37. AIRCRAFT TYPE	38. AIRCRAFT NO.	39. AIRCRAFT REG.	40. AIRCRAFT TYPE
41. AIRCRAFT TYPE	42. AIRCRAFT NO.	43. AIRCRAFT REG.	44. AIRCRAFT TYPE
45. AIRCRAFT TYPE	46. AIRCRAFT NO.	47. AIRCRAFT REG.	48. AIRCRAFT TYPE
49. AIRCRAFT TYPE	50. AIRCRAFT NO.	51. AIRCRAFT REG.	52. AIRCRAFT TYPE
53. AIRCRAFT TYPE	54. AIRCRAFT NO.	55. AIRCRAFT REG.	56. AIRCRAFT TYPE
57. AIRCRAFT TYPE	58. AIRCRAFT NO.	59. AIRCRAFT REG.	60. AIRCRAFT TYPE
61. AIRCRAFT TYPE	62. AIRCRAFT NO.	63. AIRCRAFT REG.	64. AIRCRAFT TYPE
65. AIRCRAFT TYPE	66. AIRCRAFT NO.	67. AIRCRAFT REG.	68. AIRCRAFT TYPE
69. AIRCRAFT TYPE	70. AIRCRAFT NO.	71. AIRCRAFT REG.	72. AIRCRAFT TYPE
73. AIRCRAFT TYPE	74. AIRCRAFT NO.	75. AIRCRAFT REG.	76. AIRCRAFT TYPE
77. AIRCRAFT TYPE	78. AIRCRAFT NO.	79. AIRCRAFT REG.	80. AIRCRAFT TYPE
81. AIRCRAFT TYPE	82. AIRCRAFT NO.	83. AIRCRAFT REG.	84. AIRCRAFT TYPE
85. AIRCRAFT TYPE	86. AIRCRAFT NO.	87. AIRCRAFT REG.	88. AIRCRAFT TYPE
89. AIRCRAFT TYPE	90. AIRCRAFT NO.	91. AIRCRAFT REG.	92. AIRCRAFT TYPE
93. AIRCRAFT TYPE	94. AIRCRAFT NO.	95. AIRCRAFT REG.	96. AIRCRAFT TYPE
97. AIRCRAFT TYPE	98. AIRCRAFT NO.	99. AIRCRAFT REG.	100. AIRCRAFT TYPE

NO		PAGE		RECEIPTS OF BORINGS	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS					
DESIGNED BY: JLM		LANEPORT LAKE SAN GABRIEL RIVER, TEXAS			
DRAWN BY:		LOGS OF BORINGS			
CHECKED BY: JLM		8A6C-567 VOLUME - II			
SUBMITTED BY: <i>Quint</i>		INVITATION NO. <i>ENGINEER DISTRICT</i> SPECIFICATIONS DATED <i>MM/YY</i>		DRAWING NO. SHEET NO. 54 OF 58	
ENGINEER		DRAWING NUMBER		SHEET NO. 54	

DRILLING LOG	DATE	LOCATION	DEPTH	DIAMETER	REMARKS
LANEPORT LAKE	1964-56	San Gabriel River, Texas			
1. NAME OF PROJECT	LANEPORT LAKE				
2. NAME OF ENGINEER	W. H. S. S. S.				
3. NAME OF DRILLER	W. H. S. S. S.				
4. NAME OF DRILLING COMPANY	W. H. S. S. S.				
5. NAME OF DRILLING EQUIPMENT	W. H. S. S. S.				
6. NAME OF DRILLING OPERATOR	W. H. S. S. S.				
7. NAME OF DRILLING ASSISTANT	W. H. S. S. S.				
8. NAME OF DRILLING SUPERVISOR	W. H. S. S. S.				
9. NAME OF DRILLING INSPECTOR	W. H. S. S. S.				
10. NAME OF DRILLING RECORDER	W. H. S. S. S.				
11. NAME OF DRILLING TIMEKEEPER	W. H. S. S. S.				
12. NAME OF DRILLING MATERIALS MANAGER	W. H. S. S. S.				
13. NAME OF DRILLING TOOLBOX MANAGER	W. H. S. S. S.				
14. NAME OF DRILLING SAFETY MANAGER	W. H. S. S. S.				
15. NAME OF DRILLING QUALITY MANAGER	W. H. S. S. S.				
16. NAME OF DRILLING ENVIRONMENTAL MANAGER	W. H. S. S. S.				
17. NAME OF DRILLING HEALTH AND SAFETY MANAGER	W. H. S. S. S.				
18. NAME OF DRILLING COMMUNITY RELATIONS MANAGER	W. H. S. S. S.				
19. NAME OF DRILLING PUBLIC AFFAIRS MANAGER	W. H. S. S. S.				
20. NAME OF DRILLING LEGAL COUNSEL	W. H. S. S. S.				
21. NAME OF DRILLING FINANCIAL MANAGER	W. H. S. S. S.				
22. NAME OF DRILLING HUMAN RESOURCES MANAGER	W. H. S. S. S.				
23. NAME OF DRILLING INFORMATION MANAGER	W. H. S. S. S.				
24. NAME OF DRILLING LOGISTICS MANAGER	W. H. S. S. S.				
25. NAME OF DRILLING SUPPLY MANAGER	W. H. S. S. S.				
26. NAME OF DRILLING MAINTENANCE MANAGER	W. H. S. S. S.				
27. NAME OF DRILLING FACILITIES MANAGER	W. H. S. S. S.				
28. NAME OF DRILLING TRANSPORTATION MANAGER	W. H. S. S. S.				
29. NAME OF DRILLING COMMUNICATIONS MANAGER	W. H. S. S. S.				
30. NAME OF DRILLING SECURITY MANAGER	W. H. S. S. S.				
31. NAME OF DRILLING COMPLIANCE MANAGER	W. H. S. S. S.				
32. NAME OF DRILLING RISK MANAGEMENT MANAGER	W. H. S. S. S.				
33. NAME OF DRILLING BUSINESS DEVELOPMENT MANAGER	W. H. S. S. S.				
34. NAME OF DRILLING PARTNERSHIP MANAGER	W. H. S. S. S.				
35. NAME OF DRILLING MERGERS AND ACQUISITIONS MANAGER	W. H. S. S. S.				
36. NAME OF DRILLING CORPORATE SOCIAL RESPONSIBILITY MANAGER	W. H. S. S. S.				
37. NAME OF DRILLING ENVIRONMENTAL, SOCIAL AND GOVERNANCE MANAGER	W. H. S. S. S.				
38. NAME OF DRILLING SUSTAINABILITY MANAGER	W. H. S. S. S.				
39. NAME OF DRILLING INNOVATION MANAGER	W. H. S. S. S.				
40. NAME OF DRILLING RESEARCH AND DEVELOPMENT MANAGER	W. H. S. S. S.				
41. NAME OF DRILLING TECHNOLOGY MANAGER	W. H. S. S. S.				
42. NAME OF DRILLING PRODUCT MANAGER	W. H. S. S. S.				
43. NAME OF DRILLING MARKETING MANAGER	W. H. S. S. S.				
44. NAME OF DRILLING SALES MANAGER	W. H. S. S. S.				
45. NAME OF DRILLING CUSTOMER SUPPORT MANAGER	W. H. S. S. S.				
46. NAME OF DRILLING FINANCIAL ANALYST	W. H. S. S. S.				
47. NAME OF DRILLING ACCOUNTING MANAGER	W. H. S. S. S.				
48. NAME OF DRILLING TAX MANAGER	W. H. S. S. S.				
49. NAME OF DRILLING INVESTMENT MANAGER	W. H. S. S. S.				
50. NAME OF DRILLING PORTFOLIO MANAGER	W. H. S. S. S.				
51. NAME OF DRILLING RISK ANALYST	W. H. S. S. S.				
52. NAME OF DRILLING COMPLIANCE ANALYST	W. H. S. S. S.				
53. NAME OF DRILLING ENVIRONMENTAL ANALYST	W. H. S. S. S.				
54. NAME OF DRILLING SOCIAL ANALYST	W. H. S. S. S.				
55. NAME OF DRILLING GOVERNANCE ANALYST	W. H. S. S. S.				
56. NAME OF DRILLING SUSTAINABILITY ANALYST	W. H. S. S. S.				
57. NAME OF DRILLING INNOVATION ANALYST	W. H. S. S. S.				
58. NAME OF DRILLING RESEARCH AND DEVELOPMENT ANALYST	W. H. S. S. S.				
59. NAME OF DRILLING TECHNOLOGY ANALYST	W. H. S. S. S.				
60. NAME OF DRILLING PRODUCT ANALYST	W. H. S. S. S.				
61. NAME OF DRILLING MARKETING ANALYST	W. H. S. S. S.				
62. NAME OF DRILLING SALES ANALYST	W. H. S. S. S.				
63. NAME OF DRILLING CUSTOMER SUPPORT ANALYST	W. H. S. S. S.				
64. NAME OF DRILLING FINANCIAL ANALYST	W. H. S. S. S.				
65. NAME OF DRILLING ACCOUNTING ANALYST	W. H. S. S. S.				
66. NAME OF DRILLING TAX ANALYST	W. H. S. S. S.				
67. NAME OF DRILLING INVESTMENT ANALYST	W. H. S. S. S.				
68. NAME OF DRILLING PORTFOLIO ANALYST	W. H. S. S. S.				
69. NAME OF DRILLING RISK ANALYST	W. H. S. S. S.				
70. NAME OF DRILLING COMPLIANCE ANALYST	W. H. S. S. S.				
71. NAME OF DRILLING ENVIRONMENTAL ANALYST	W. H. S. S. S.				
72. NAME OF DRILLING SOCIAL ANALYST	W. H. S. S. S.				
73. NAME OF DRILLING GOVERNANCE ANALYST	W. H. S. S. S.				
74. NAME OF DRILLING SUSTAINABILITY ANALYST	W. H. S. S. S.				
75. NAME OF DRILLING INNOVATION ANALYST	W. H. S. S. S.				
76. NAME OF DRILLING RESEARCH AND DEVELOPMENT ANALYST	W. H. S. S. S.				
77. NAME OF DRILLING TECHNOLOGY ANALYST	W. H. S. S. S.				
78. NAME OF DRILLING PRODUCT ANALYST	W. H. S. S. S.				
79. NAME OF DRILLING MARKETING ANALYST	W. H. S. S. S.				
80. NAME OF DRILLING SALES ANALYST	W. H. S. S. S.				
81. NAME OF DRILLING CUSTOMER SUPPORT ANALYST	W. H. S. S. S.				
82. NAME OF DRILLING FINANCIAL ANALYST	W. H. S. S. S.				
83. NAME OF DRILLING ACCOUNTING ANALYST	W. H. S. S. S.				
84. NAME OF DRILLING TAX ANALYST	W. H. S. S. S.				
85. NAME OF DRILLING INVESTMENT ANALYST	W. H. S. S. S.				
86. NAME OF DRILLING PORTFOLIO ANALYST	W. H. S. S. S.				
87. NAME OF DRILLING RISK ANALYST	W. H. S. S. S.				
88. NAME OF DRILLING COMPLIANCE ANALYST	W. H. S. S. S.				
89. NAME OF DRILLING ENVIRONMENTAL ANALYST	W. H. S. S. S.				
90. NAME OF DRILLING SOCIAL ANALYST	W. H. S. S. S.				
91. NAME OF DRILLING GOVERNANCE ANALYST	W. H. S. S. S.				
92. NAME OF DRILLING SUSTAINABILITY ANALYST	W. H. S. S. S.				
93. NAME OF DRILLING INNOVATION ANALYST	W. H. S. S. S.				
94. NAME OF DRILLING RESEARCH AND DEVELOPMENT ANALYST	W. H. S. S. S.				
95. NAME OF DRILLING TECHNOLOGY ANALYST	W. H. S. S. S.				
96. NAME OF DRILLING PRODUCT ANALYST	W. H. S. S. S.				
97. NAME OF DRILLING MARKETING ANALYST	W. H. S. S. S.				
98. NAME OF DRILLING SALES ANALYST	W. H. S. S. S.				
99. NAME OF DRILLING CUSTOMER SUPPORT ANALYST	W. H. S. S. S.				
100. NAME OF DRILLING FINANCIAL ANALYST	W. H. S. S. S.				

DESIGNED BY:	LANEPORT LAKE SAN GABRIEL RIVER, TEXAS
DRAWN BY:	LOGS OF BORINGS
CHECKED BY:	8A6C-568 VOLUME-II
SUBMITTED BY:	INVESTIGATION NO. 1964-56
ENGINEER:	SPECIFICATIONS DATED 1964-56
	DRAWING NUMBER 1964-56
	SHEET NO. 55

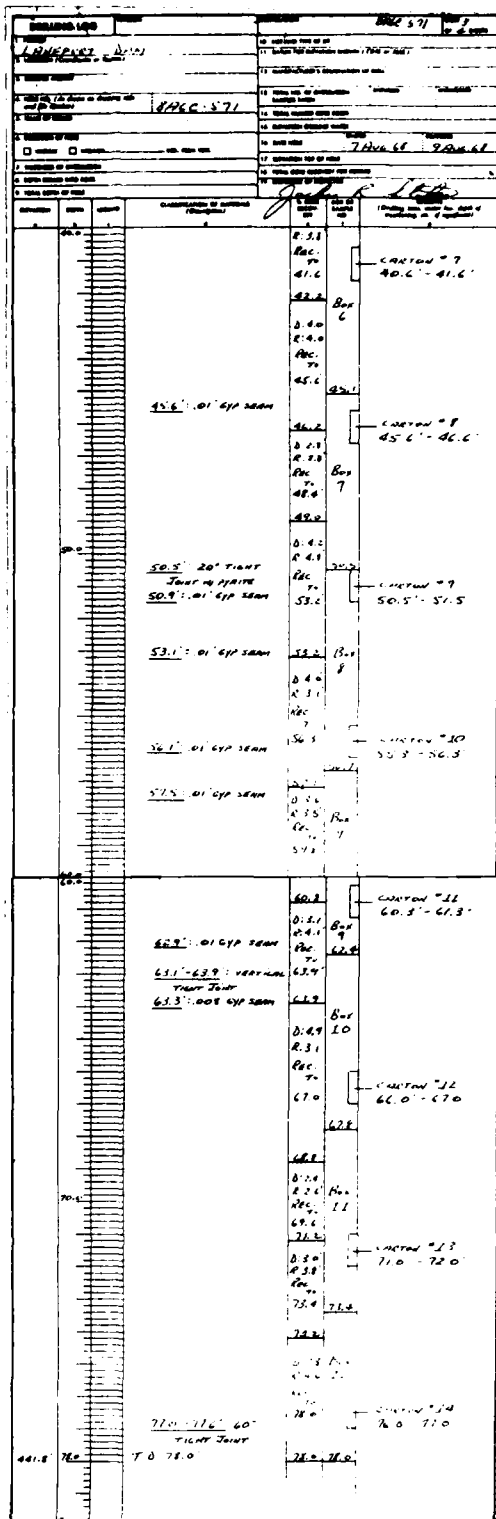
GENERAL DATA		SPECIFICATIONS	
PROJECT NAME	1.0	DESIGNER	2.0
CLIENT	3.0	DATE	4.0
LOCATION	5.0	SCALE	6.0
DESIGNER'S NAME	7.0	DESIGNER'S ADDRESS	8.0
DESIGNER'S PHONE	9.0	DESIGNER'S FAX	10.0
DESIGNER'S E-MAIL	11.0	DESIGNER'S WEBSITE	12.0
DESIGNER'S LICENSE	13.0	DESIGNER'S EXPIRATION	14.0
DESIGNER'S SIGNATURE	15.0	DESIGNER'S SEAL	16.0
DESIGNER'S STAMP	17.0	DESIGNER'S NOTES	18.0
DESIGNER'S COMMENTS	19.0	DESIGNER'S REVISIONS	20.0
DESIGNER'S APPROVAL	21.0	DESIGNER'S REVIEW	22.0
DESIGNER'S SIGNATURE	23.0	DESIGNER'S SEAL	24.0
DESIGNER'S STAMP	25.0	DESIGNER'S NOTES	26.0
DESIGNER'S COMMENTS	27.0	DESIGNER'S REVISIONS	28.0
DESIGNER'S APPROVAL	29.0	DESIGNER'S REVIEW	30.0
DESIGNER'S SIGNATURE	31.0	DESIGNER'S SEAL	32.0
DESIGNER'S STAMP	33.0	DESIGNER'S NOTES	34.0
DESIGNER'S COMMENTS	35.0	DESIGNER'S REVISIONS	36.0
DESIGNER'S APPROVAL	37.0	DESIGNER'S REVIEW	38.0
DESIGNER'S SIGNATURE	39.0	DESIGNER'S SEAL	40.0
DESIGNER'S STAMP	41.0	DESIGNER'S NOTES	42.0
DESIGNER'S COMMENTS	43.0	DESIGNER'S REVISIONS	44.0
DESIGNER'S APPROVAL	45.0	DESIGNER'S REVIEW	46.0
DESIGNER'S SIGNATURE	47.0	DESIGNER'S SEAL	48.0
DESIGNER'S STAMP	49.0	DESIGNER'S NOTES	50.0
DESIGNER'S COMMENTS	51.0	DESIGNER'S REVISIONS	52.0
DESIGNER'S APPROVAL	53.0	DESIGNER'S REVIEW	54.0
DESIGNER'S SIGNATURE	55.0	DESIGNER'S SEAL	56.0
DESIGNER'S STAMP	57.0	DESIGNER'S NOTES	58.0
DESIGNER'S COMMENTS	59.0	DESIGNER'S REVISIONS	60.0
DESIGNER'S APPROVAL	61.0	DESIGNER'S REVIEW	62.0
DESIGNER'S SIGNATURE	63.0	DESIGNER'S SEAL	64.0
DESIGNER'S STAMP	65.0	DESIGNER'S NOTES	66.0
DESIGNER'S COMMENTS	67.0	DESIGNER'S REVISIONS	68.0
DESIGNER'S APPROVAL	69.0	DESIGNER'S REVIEW	70.0
DESIGNER'S SIGNATURE	71.0	DESIGNER'S SEAL	72.0
DESIGNER'S STAMP	73.0	DESIGNER'S NOTES	74.0
DESIGNER'S COMMENTS	75.0	DESIGNER'S REVISIONS	76.0
DESIGNER'S APPROVAL	77.0	DESIGNER'S REVIEW	78.0
DESIGNER'S SIGNATURE	79.0	DESIGNER'S SEAL	80.0
DESIGNER'S STAMP	81.0	DESIGNER'S NOTES	82.0
DESIGNER'S COMMENTS	83.0	DESIGNER'S REVISIONS	84.0
DESIGNER'S APPROVAL	85.0	DESIGNER'S REVIEW	86.0
DESIGNER'S SIGNATURE	87.0	DESIGNER'S SEAL	88.0
DESIGNER'S STAMP	89.0	DESIGNER'S NOTES	90.0
DESIGNER'S COMMENTS	91.0	DESIGNER'S REVISIONS	92.0
DESIGNER'S APPROVAL	93.0	DESIGNER'S REVIEW	94.0
DESIGNER'S SIGNATURE	95.0	DESIGNER'S SEAL	96.0
DESIGNER'S STAMP	97.0	DESIGNER'S NOTES	98.0
DESIGNER'S COMMENTS	99.0	DESIGNER'S REVISIONS	100.0

GENERAL DATA		SPECIFICATIONS	
PROJECT NAME	1.0	DESIGNER	2.0
CLIENT	3.0	DATE	4.0
LOCATION	5.0	SCALE	6.0
DESIGNER'S NAME	7.0	DESIGNER'S ADDRESS	8.0
DESIGNER'S PHONE	9.0	DESIGNER'S FAX	10.0
DESIGNER'S E-MAIL	11.0	DESIGNER'S WEBSITE	12.0
DESIGNER'S LICENSE	13.0	DESIGNER'S EXPIRATION	14.0
DESIGNER'S SIGNATURE	15.0	DESIGNER'S SEAL	16.0
DESIGNER'S STAMP	17.0	DESIGNER'S NOTES	18.0
DESIGNER'S COMMENTS	19.0	DESIGNER'S REVISIONS	20.0
DESIGNER'S APPROVAL	21.0	DESIGNER'S REVIEW	22.0
DESIGNER'S SIGNATURE	23.0	DESIGNER'S SEAL	24.0
DESIGNER'S STAMP	25.0	DESIGNER'S NOTES	26.0
DESIGNER'S COMMENTS	27.0	DESIGNER'S REVISIONS	28.0
DESIGNER'S APPROVAL	29.0	DESIGNER'S REVIEW	30.0
DESIGNER'S SIGNATURE	31.0	DESIGNER'S SEAL	32.0
DESIGNER'S STAMP	33.0	DESIGNER'S NOTES	34.0
DESIGNER'S COMMENTS	35.0	DESIGNER'S REVISIONS	36.0
DESIGNER'S APPROVAL	37.0	DESIGNER'S REVIEW	38.0
DESIGNER'S SIGNATURE	39.0	DESIGNER'S SEAL	40.0
DESIGNER'S STAMP	41.0	DESIGNER'S NOTES	42.0
DESIGNER'S COMMENTS	43.0	DESIGNER'S REVISIONS	44.0
DESIGNER'S APPROVAL	45.0	DESIGNER'S REVIEW	46.0
DESIGNER'S SIGNATURE	47.0	DESIGNER'S SEAL	48.0
DESIGNER'S STAMP	49.0	DESIGNER'S NOTES	50.0
DESIGNER'S COMMENTS	51.0	DESIGNER'S REVISIONS	52.0
DESIGNER'S APPROVAL	53.0	DESIGNER'S REVIEW	54.0
DESIGNER'S SIGNATURE	55.0	DESIGNER'S SEAL	56.0
DESIGNER'S STAMP	57.0	DESIGNER'S NOTES	58.0
DESIGNER'S COMMENTS	59.0	DESIGNER'S REVISIONS	60.0
DESIGNER'S APPROVAL	61.0	DESIGNER'S REVIEW	62.0
DESIGNER'S SIGNATURE	63.0	DESIGNER'S SEAL	64.0
DESIGNER'S STAMP	65.0	DESIGNER'S NOTES	66.0
DESIGNER'S COMMENTS	67.0	DESIGNER'S REVISIONS	68.0
DESIGNER'S APPROVAL	69.0	DESIGNER'S REVIEW	70.0
DESIGNER'S SIGNATURE	71.0	DESIGNER'S SEAL	72.0
DESIGNER'S STAMP	73.0	DESIGNER'S NOTES	74.0
DESIGNER'S COMMENTS	75.0	DESIGNER'S REVISIONS	76.0
DESIGNER'S APPROVAL	77.0	DESIGNER'S REVIEW	78.0
DESIGNER'S SIGNATURE	79.0	DESIGNER'S SEAL	80.0
DESIGNER'S STAMP	81.0	DESIGNER'S NOTES	82.0
DESIGNER'S COMMENTS	83.0	DESIGNER'S REVISIONS	84.0
DESIGNER'S APPROVAL	85.0	DESIGNER'S REVIEW	86.0
DESIGNER'S SIGNATURE	87.0	DESIGNER'S SEAL	88.0
DESIGNER'S STAMP	89.0	DESIGNER'S NOTES	90.0
DESIGNER'S COMMENTS	91.0	DESIGNER'S REVISIONS	92.0
DESIGNER'S APPROVAL	93.0	DESIGNER'S REVIEW	94.0
DESIGNER'S SIGNATURE	95.0	DESIGNER'S SEAL	96.0
DESIGNER'S STAMP	97.0	DESIGNER'S NOTES	98.0
DESIGNER'S COMMENTS	99.0	DESIGNER'S REVISIONS	100.0

DRAWING LOG		DATE		PAGE	
1. PROJECT		2. DATE AND TIME OF DAY		3. DRAWING NO.	
LANEPORT LAKE		15 Jan 68		570	
4. LOCATION		5. LOCATION		6. LOCATION	
SAN GABRIEL RIVER, TEXAS		15 Jan 68		570	
7. DRAWING NO.		8. DRAWING NO.		9. DRAWING NO.	
570		570		570	
10. DRAWING NO.		11. DRAWING NO.		12. DRAWING NO.	
570		570		570	
13. DRAWING NO.		14. DRAWING NO.		15. DRAWING NO.	
570		570		570	
16. DRAWING NO.		17. DRAWING NO.		18. DRAWING NO.	
570		570		570	
19. DRAWING NO.		20. DRAWING NO.		21. DRAWING NO.	
570		570		570	
22. DRAWING NO.		23. DRAWING NO.		24. DRAWING NO.	
570		570		570	
25. DRAWING NO.		26. DRAWING NO.		27. DRAWING NO.	
570		570		570	
28. DRAWING NO.		29. DRAWING NO.		30. DRAWING NO.	
570		570		570	
31. DRAWING NO.		32. DRAWING NO.		33. DRAWING NO.	
570		570		570	
34. DRAWING NO.		35. DRAWING NO.		36. DRAWING NO.	
570		570		570	
37. DRAWING NO.		38. DRAWING NO.		39. DRAWING NO.	
570		570		570	
40. DRAWING NO.		41. DRAWING NO.		42. DRAWING NO.	
570		570		570	
43. DRAWING NO.		44. DRAWING NO.		45. DRAWING NO.	
570		570		570	
46. DRAWING NO.		47. DRAWING NO.		48. DRAWING NO.	
570		570		570	
49. DRAWING NO.		50. DRAWING NO.		51. DRAWING NO.	
570		570		570	
52. DRAWING NO.		53. DRAWING NO.		54. DRAWING NO.	
570		570		570	
55. DRAWING NO.		56. DRAWING NO.		57. DRAWING NO.	
570		570		570	
58. DRAWING NO.		59. DRAWING NO.		60. DRAWING NO.	
570		570		570	
61. DRAWING NO.		62. DRAWING NO.		63. DRAWING NO.	
570		570		570	
64. DRAWING NO.		65. DRAWING NO.		66. DRAWING NO.	
570		570		570	
67. DRAWING NO.		68. DRAWING NO.		69. DRAWING NO.	
570		570		570	
70. DRAWING NO.		71. DRAWING NO.		72. DRAWING NO.	
570		570		570	
73. DRAWING NO.		74. DRAWING NO.		75. DRAWING NO.	
570		570		570	
76. DRAWING NO.		77. DRAWING NO.		78. DRAWING NO.	
570		570		570	
79. DRAWING NO.		80. DRAWING NO.		81. DRAWING NO.	
570		570		570	
82. DRAWING NO.		83. DRAWING NO.		84. DRAWING NO.	
570		570		570	
85. DRAWING NO.		86. DRAWING NO.		87. DRAWING NO.	
570		570		570	
88. DRAWING NO.		89. DRAWING NO.		90. DRAWING NO.	
570		570		570	
91. DRAWING NO.		92. DRAWING NO.		93. DRAWING NO.	
570		570		570	
94. DRAWING NO.		95. DRAWING NO.		96. DRAWING NO.	
570		570		570	
97. DRAWING NO.		98. DRAWING NO.		99. DRAWING NO.	
570		570		570	
100. DRAWING NO.		101. DRAWING NO.		102. DRAWING NO.	
570		570		570	

DESIGNED BY		DATE		DESCRIPTION BY	
JLM		15 Jan 68		LANEPORT LAKE	
JLM		15 Jan 68		SAN GABRIEL RIVER, TEXAS	
JLM		15 Jan 68		LOGS OF BORINGS	
JLM		15 Jan 68		8A6C-570	
JLM		15 Jan 68		VOLUME - II	
JLM		15 Jan 68		INVESTIGATION NO. 570	
JLM		15 Jan 68		SPECIFICATIONS DATED 15 Jan 68	
JLM		15 Jan 68		DRAWING NUMBER	
JLM		15 Jan 68		SHEET NO	
JLM		15 Jan 68		57 OF 58	
JLM		15 Jan 68		SEQUENCE NO	
JLM		15 Jan 68		57	

TO ACCOMPANY FINAL FOUNDATION REPORT PLATE 102

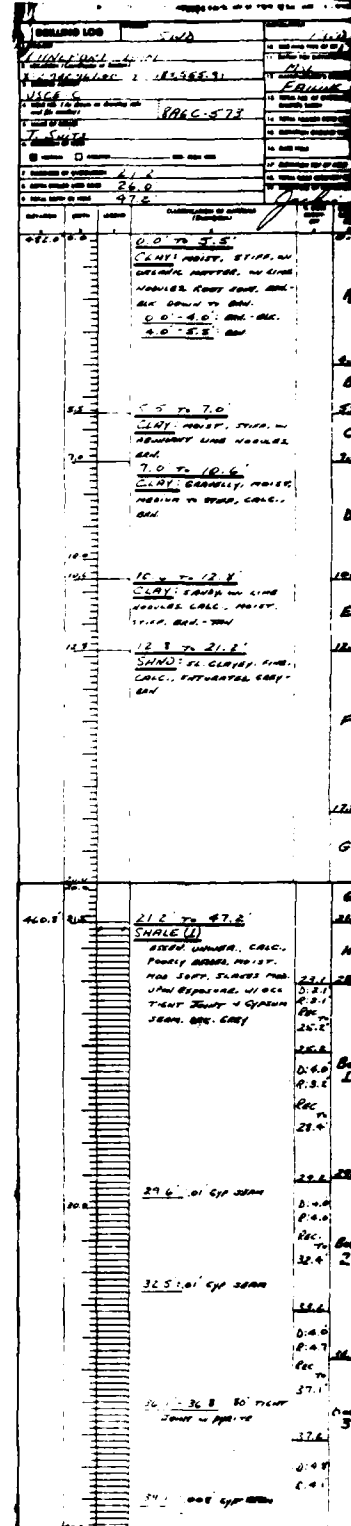


Nov 7
 7-41.6
 Nov 8
 7-46.6
 Nov 9
 7-51.5
 Nov 10
 7-56.3
 Nov 11
 7-61.3
 Nov 12
 7-67.0
 Nov 13
 7-72.0
 Nov 14
 77.0

AM*0001 (SHOWS) NEW SHEET ADDED	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS	
DESIGNED BY:	GRANGER DAM AND LAKE SAN GABRIEL RIVER, TEXAS LOGS OF BORINGS 8A8C-571
DRAWN BY:	
CHECKED BY:	
SUBMITTED BY:	
CONTR NO	IRV NO DACW65-76-D-0002 DATED: NOV. 76
DRAWING NUMBER	SHEET NO. 58

TO ACCOMPANY FINAL FOUNDATION REPORT

PLATE 103



The image is a severely degraded scan of a document. In the upper left, there is a header area with the word "REPORT" faintly visible. Below this, there are several lines of text and a table-like structure with multiple columns. The right half of the page is dominated by large, dark, irregular shapes that obscure any underlying content. A vertical strip of text or a binding edge is visible along the right margin.

PLATE 104

Drilling Log

Project: 8A6C-574

Location: Laneport Lake, San Gabriel River, Texas

Drilling Date: 10/10/54

Drilling Party: JLM, JLM, JLM

Drilling Equipment: 10" Drill, 10" Drill, 10" Drill

Drilling Results:

Depth (ft)	Soil Description	Remarks
0.0	Gravelly sand	
1.0	Gravelly sand	
2.0	Gravelly sand	
3.0	Gravelly sand	
4.0	Gravelly sand	
5.0	Gravelly sand	
6.0	Gravelly sand	
7.0	Gravelly sand	
8.0	Gravelly sand	
9.0	Gravelly sand	
10.0	Gravelly sand	
11.0	Gravelly sand	
12.0	Gravelly sand	
13.0	Gravelly sand	
14.0	Gravelly sand	
15.0	Gravelly sand	
16.0	Gravelly sand	
17.0	Gravelly sand	
18.0	Gravelly sand	
19.0	Gravelly sand	
20.0	Gravelly sand	
21.0	Gravelly sand	
22.0	Gravelly sand	
23.0	Gravelly sand	
24.0	Gravelly sand	
25.0	Gravelly sand	
26.0	Gravelly sand	
27.0	Gravelly sand	
28.0	Gravelly sand	
29.0	Gravelly sand	
30.0	Gravelly sand	
31.0	Gravelly sand	
32.0	Gravelly sand	
33.0	Gravelly sand	
34.0	Gravelly sand	
35.0	Gravelly sand	
36.0	Gravelly sand	
37.0	Gravelly sand	
38.0	Gravelly sand	
39.0	Gravelly sand	
40.0	Gravelly sand	
41.0	Gravelly sand	
42.0	Gravelly sand	
43.0	Gravelly sand	
44.0	Gravelly sand	
45.0	Gravelly sand	
46.0	Gravelly sand	
47.0	Gravelly sand	
48.0	Gravelly sand	
49.0	Gravelly sand	
50.0	Gravelly sand	
51.0	Gravelly sand	
52.0	Gravelly sand	
53.0	Gravelly sand	
54.0	Gravelly sand	
55.0	Gravelly sand	
56.0	Gravelly sand	
57.0	Gravelly sand	
58.0	Gravelly sand	
59.0	Gravelly sand	
60.0	Gravelly sand	

U.S. Army Engineer District, Fort Worth
Corps of Engineers
Fort Worth, Texas

DESIGNED BY: JLM
DRAWN BY: JLM
CHECKED BY: JLM
SUBMITTED BY: JLM

LANEPORT LAKE
SAN GABRIEL RIVER, TEXAS

LOGS OF BORINGS
8A6C-574
VOLUME - II

INVESTIGATION NO. 100
SPECIFICATIONS DATED 1954
DRAWING NUMBER
SHEET NO. 60 OF 100
SEQUENCE NO. 60

2

[illegible]

DEBRIS LOG			REMARKS	
1. NAME			2. DATE AND TIME OF USE	
3. LOCATION (City, State, Country, etc.)			4. DATE AND TIME OF USE	
5. NAME OF VESSEL			6. NAME OF CAPTAIN	
7. NAME OF CREW			8. NAME OF PASSENGER	
9. NAME OF PASSENGER			10. NAME OF PASSENGER	
11. NAME OF PASSENGER			12. NAME OF PASSENGER	
13. NAME OF PASSENGER			14. NAME OF PASSENGER	
15. NAME OF PASSENGER			16. NAME OF PASSENGER	
17. NAME OF PASSENGER			18. NAME OF PASSENGER	
19. NAME OF PASSENGER			20. NAME OF PASSENGER	
21. NAME OF PASSENGER			22. NAME OF PASSENGER	
23. NAME OF PASSENGER			24. NAME OF PASSENGER	
25. NAME OF PASSENGER			26. NAME OF PASSENGER	
27. NAME OF PASSENGER			28. NAME OF PASSENGER	
29. NAME OF PASSENGER			30. NAME OF PASSENGER	
31. NAME OF PASSENGER			32. NAME OF PASSENGER	
33. NAME OF PASSENGER			34. NAME OF PASSENGER	
35. NAME OF PASSENGER			36. NAME OF PASSENGER	
37. NAME OF PASSENGER			38. NAME OF PASSENGER	
39. NAME OF PASSENGER			40. NAME OF PASSENGER	
41. NAME OF PASSENGER			42. NAME OF PASSENGER	
43. NAME OF PASSENGER			44. NAME OF PASSENGER	
45. NAME OF PASSENGER			46. NAME OF PASSENGER	
47. NAME OF PASSENGER			48. NAME OF PASSENGER	
49. NAME OF PASSENGER			50. NAME OF PASSENGER	
51. NAME OF PASSENGER			52. NAME OF PASSENGER	
53. NAME OF PASSENGER			54. NAME OF PASSENGER	
55. NAME OF PASSENGER			56. NAME OF PASSENGER	
57. NAME OF PASSENGER			58. NAME OF PASSENGER	
59. NAME OF PASSENGER			60. NAME OF PASSENGER	
61. NAME OF PASSENGER			62. NAME OF PASSENGER	
63. NAME OF PASSENGER			64. NAME OF PASSENGER	
65. NAME OF PASSENGER			66. NAME OF PASSENGER	
67. NAME OF PASSENGER			68. NAME OF PASSENGER	
69. NAME OF PASSENGER			70. NAME OF PASSENGER	
71. NAME OF PASSENGER			72. NAME OF PASSENGER	
73. NAME OF PASSENGER			74. NAME OF PASSENGER	
75. NAME OF PASSENGER			76. NAME OF PASSENGER	
77. NAME OF PASSENGER			78. NAME OF PASSENGER	
79. NAME OF PASSENGER			80. NAME OF PASSENGER	
81. NAME OF PASSENGER			82. NAME OF PASSENGER	
83. NAME OF PASSENGER			84. NAME OF PASSENGER	
85. NAME OF PASSENGER			86. NAME OF PASSENGER	
87. NAME OF PASSENGER			88. NAME OF PASSENGER	
89. NAME OF PASSENGER			90. NAME OF PASSENGER	
91. NAME OF PASSENGER			92. NAME OF PASSENGER	
93. NAME OF PASSENGER			94. NAME OF PASSENGER	
95. NAME OF PASSENGER			96. NAME OF PASSENGER	
97. NAME OF PASSENGER			98. NAME OF PASSENGER	
99. NAME OF PASSENGER			100. NAME OF PASSENGER	
40.0			0:37	
			0:40	Box 1
			0:43	Box 2
			0:46	Box 3
			0:49	Box 4
			0:52	Box 5
			0:55	Box 6
			0:58	Box 7
			1:01	Box 8
			1:04	Box 9
			1:07	Box 10
			1:10	Box 11
			1:13	Box 12
			1:16	Box 13
			1:19	Box 14
			1:22	Box 15
			1:25	Box 16
			1:28	Box 17
			1:31	Box 18
			1:34	Box 19
			1:37	Box 20
			1:40	Box 21
			1:43	Box 22
			1:46	Box 23
			1:49	Box 24
			1:52	Box 25
			1:55	Box 26
			1:58	Box 27
			2:01	Box 28
			2:04	Box 29
			2:07	Box 30
			2:10	Box 31
			2:13	Box 32
			2:16	Box 33
			2:19	Box 34
			2:22	Box 35
			2:25	Box 36
			2:28	Box 37
			2:31	Box 38
			2:34	Box 39
			2:37	Box 40
			2:40	Box 41
			2:43	Box 42
			2:46	Box 43
			2:49	Box 44
</				

[illegible]

TO ACCOMPANY FINAL FOUNDATION

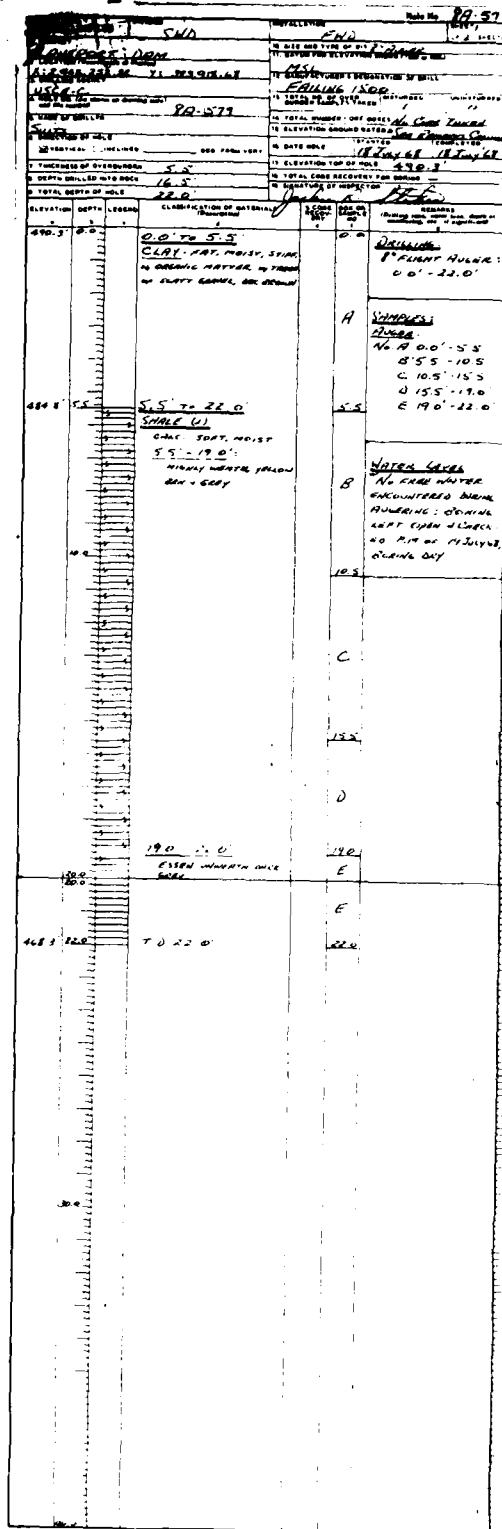
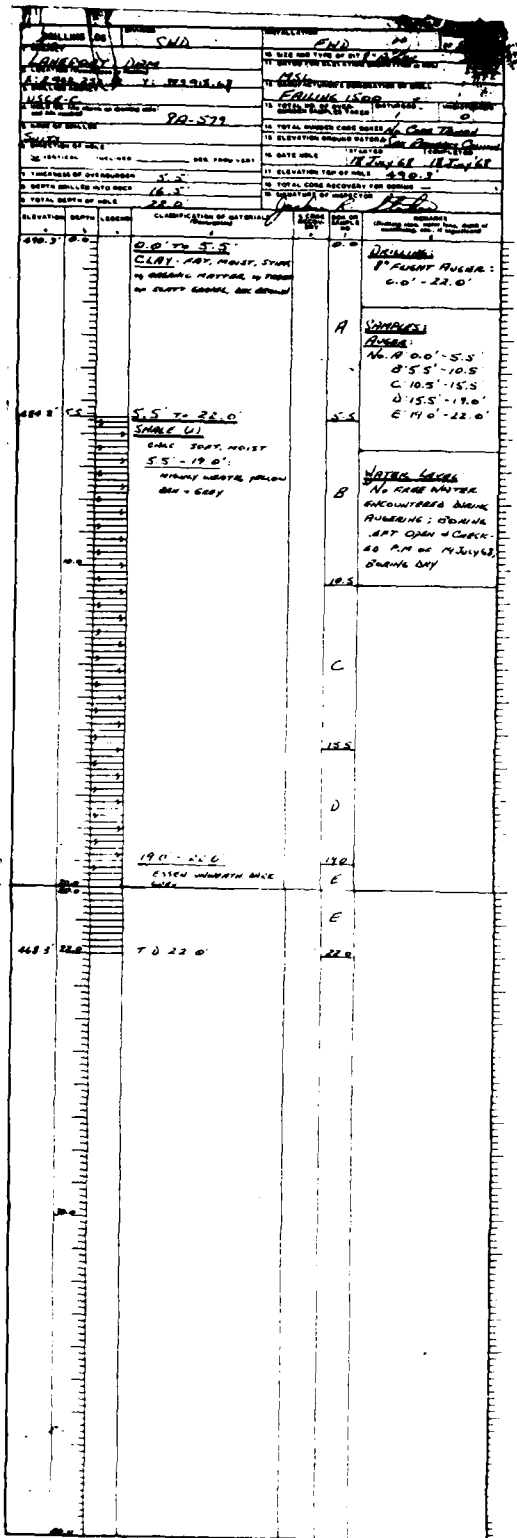
[illegible][illegible]

8A-578

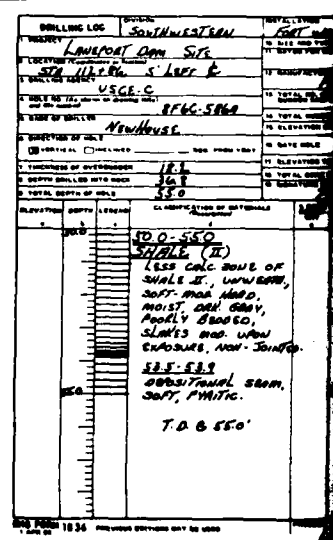
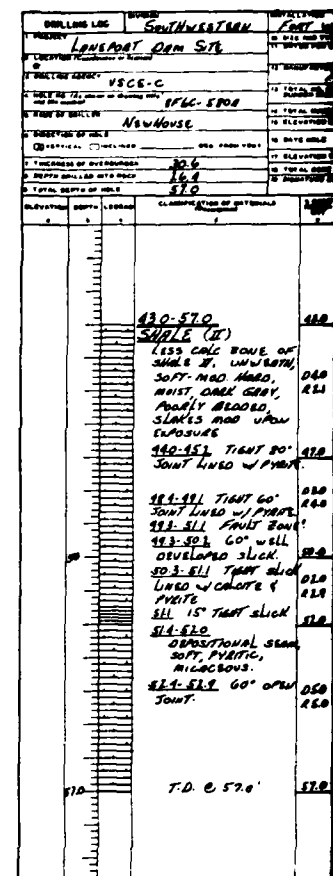
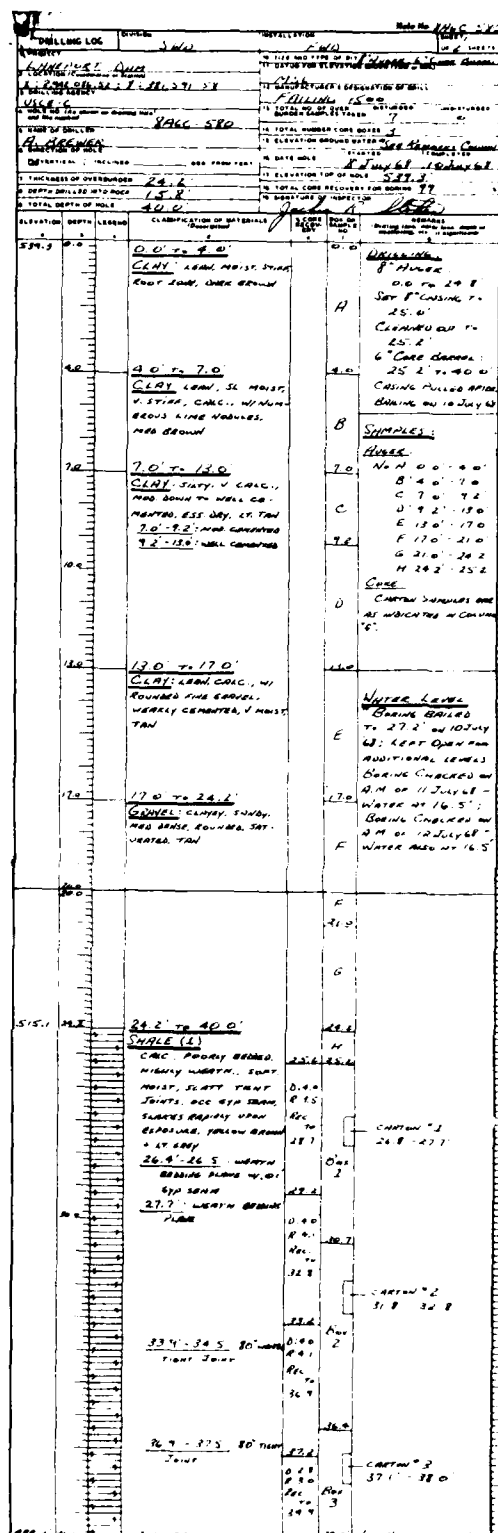
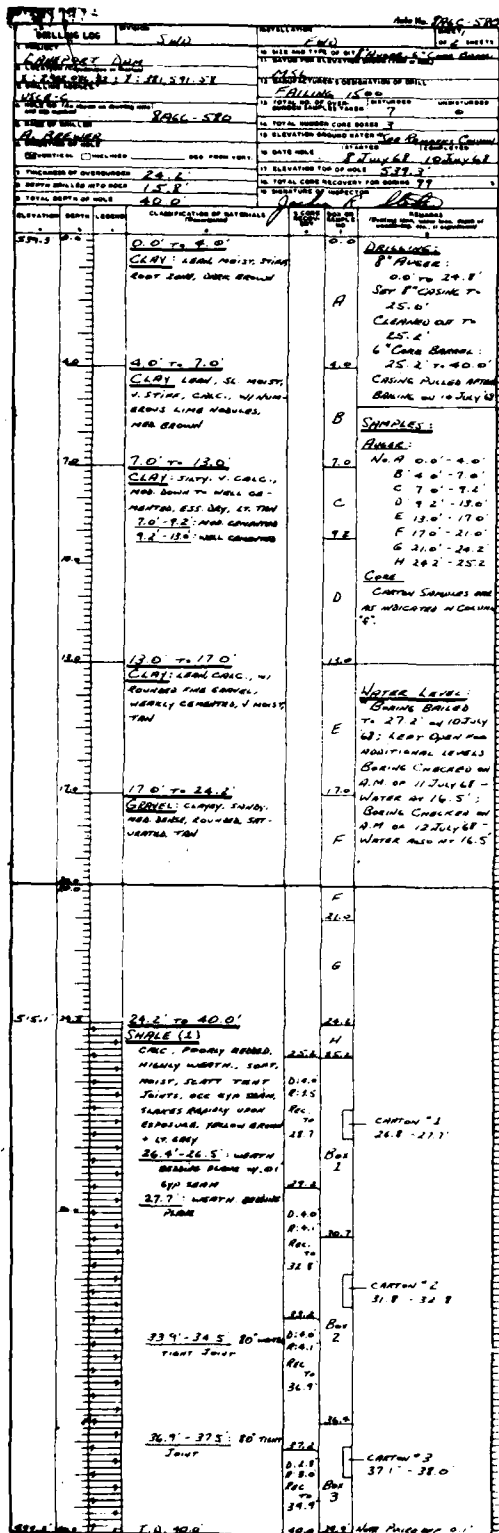
1. Title
 2. Author
 3. Editor
 4. Project Engineer
 5. Design Engineer
 6. Construction Engineer
 7. Inspection Engineer
 8. Material Engineer
 9. Foundation Engineer
 10. Structural Engineer
 11. Civil Engineer
 12. Mechanical Engineer
 13. Electrical Engineer
 14. Chemical Engineer
 15. Industrial Engineer
 16. Aeronautical Engineer
 17. Marine Engineer
 18. Nuclear Engineer
 19. Other

AMFOODS (20 NOV 75) NEW SHEET ADDED	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS	
DESIGNED BY:	GRANGER DAM AND LAKE SAN GABRIEL RIVER, TEXAS LOGS OF BORINGS 8A-577 & 8A578
DRAWN BY:	
CHECKED BY:	
SUBMITTED BY:	
INV NO. DACW63-76-D-0001 DATED NOV 75 CONTR NO. DRAWING NUMBER SHEET NO. 62	

TO ACCOMPANY FINAL FOUNDATION REPORT PLATE 107



AMPOD001 28 NOV 79 NEW SHEET ADDED	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS	
DESIGNED BY:	GRANGER DAM AND LAKE SAN GABRIEL RIVER, TEXAS LOGS OF BORINGS BA-579
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
ENGINEER:	13W NO.DACHW-5-TL-B-000 DATED NOV. 79
	CONTR. NO.
	DRAWING NUMBER
	SHEET NO. 63



Drilling Log Form for SOUTHWESTERN, PROJECT LANEPORT, USCE-C, BANC-593, NEWHOUSE/CLEVELAND. The log details a 1500-foot borehole with various geological observations and sample locations. Key entries include: 00-18.8 CLAY, FAT, SANDY, MED STIFF, MOIST, DEK. BROWN; 18.8-19.2 CLAY, LEAN, SL SANDY, CALCAREOUS w/ LIME WOODS, MOIST, TAN; 19.2-18.2 STIFF; 18.2-19.2 MED STIFF; 19.2-23.0 CLAY, V. SANDY, SOFT, WET, TAN; 23.0-30.6 CLAYEY SAND/SANDY CLAY, LOOSE, SOFT, SATO, TAN, SOME BEVELLED; 30.6-31.5 GRAVEL, HEAVY, SATO; 31.5-33.0 CONGLOMERATE (NO SAMPLE); 33.0-61.3 CALCAREOUS SHALE, WEATH. TO 34.5, MOD HARD, MOIST, GARY, V. CALC, POORLY BEDDED, NON-JOINTED EXCEPT AS INDICATED; 34.5-37.5 FEW TIGHT STANNED JOINTS; 37.5-45' JOINT; 45'-27.8 60" STAINED WELL DEV. SLICK LINED W/ WHITE; 27.8-38.0 OR 38" SOFT, PLATIC, SLICK.

Drilling Log Form for SOUTHWESTERN, PROJECT LANEPORT, USCE-C, BANC-593, NEWHOUSE. The log details a 1500-foot borehole with various geological observations and sample locations. Key entries include: 00-46 CLAY, FAT, MED STIFF, MOIST, DEK; 46-12.8 CLAY, LEAN, CALC, LIME WOODS, STIFF, MOIST, CALC; 12.8-18.0 CLAY, SL SANDY, LIME WOODS, STIFF, MOIST, CALC; 18.0-26.9 GRAVEL, 18.0-13.0 V. SANDY, MED, MOIST, TAN; 26.9-31.9 GRAVEL, MED DENSE, TAN; 31.9-59.5 CALCAREOUS, V. CALC, MOD, MOIST, GARY, NON-JOINTED, AS INDICATED, W/ WHITE, 1 ST. TO 33.4, 3 ST. TIGHT JOINTS; 59.5-71.9 CALCAREOUS, V. CALC, MOD, MOIST, GARY, NON-JOINTED, AS INDICATED, W/ WHITE, 1 ST. TO 33.4, 3 ST. TIGHT JOINTS.

Drilling Log Form for SOUTHWESTERN, PROJECT LANEPORT, USCE-C, BANC-593, NEWHOUSE. The log details a 1500-foot borehole with various geological observations and sample locations. Key entries include: 00-46 CLAY, FAT, MED STIFF, MOIST, DEK; 46-12.8 CLAY, LEAN, CALC, LIME WOODS, STIFF, MOIST, CALC; 12.8-18.0 CLAY, SL SANDY, LIME WOODS, STIFF, MOIST, CALC; 18.0-26.9 GRAVEL, 18.0-13.0 V. SANDY, MED, MOIST, TAN; 26.9-31.9 GRAVEL, MED DENSE, TAN; 31.9-59.5 CALCAREOUS, V. CALC, MOD, MOIST, GARY, NON-JOINTED, AS INDICATED, W/ WHITE, 1 ST. TO 33.4, 3 ST. TIGHT JOINTS; 59.5-71.9 CALCAREOUS, V. CALC, MOD, MOIST, GARY, NON-JOINTED, AS INDICATED, W/ WHITE, 1 ST. TO 33.4, 3 ST. TIGHT JOINTS.

Drilling Log Form for SWD, FWD, and LANEPORT. The log includes sections for well identification, drilling details, and a detailed stratigraphic column with elevations and descriptions of rock layers.

WELL IDENTIFICATION		DRILLING LOG	
WELL NAME	WELL TYPE	DATE	TIME
SWD	FWD	1966-595	1966-595
LANEPORT	LANEPORT	1966-595	1966-595

ELEVATION	DEPTH	LOG	DESCRIPTION
450.1	0.0-1.8	CLAY	DRILLING: 10' AUGER 0.0-19.5 SET 8" GUN TO 19.5 6" CORE 19.5-70.3
450.1	1.8-2.1	CLAY	WATER LEVEL: ENCOUNTERED SMALL AMOUNT OF WATER IN INTERVAL FR. 11.1-17.5 (GENTLY) WHILE PULVERING. PULLED CORING ON 3/16/69 AND LEFT HOLE OPEN FOR WATER MEASUREMENTS. HOLE CLOSED-IN ON 3/19/69
450.1	12.8-17.8	SL. SANDY, STIFF, MOIST	
450.1	17.8-22.1	MED. STIFF, MOIST	
450.1	22.1-27.5	CLAY	CLAYEY, MED. DENS, MOIST-WET, TAN.
450.1	27.5-63.6	ALCALINE SHALE	V. CALC. MOD. HARD, MOIST, GRAY, MASSIVE, UNWEATH. NON-JOINTED (EXCEPT AS INDICATED)
450.1	33.5-36.7	30' OPEN JOINT	
450.1	36.7-41.2	HIGHLY SLICK'D, NUMEROUS WELL DEV. SLICKS - PRODD. HIGH ANGLE (75-80) FAULT	

Drilling Log Form for SWD, FWD, and LANEPORT. The log includes sections for well identification, drilling details, and a detailed stratigraphic column with elevations and descriptions of rock layers.

WELL IDENTIFICATION		DRILLING LOG	
WELL NAME	WELL TYPE	DATE	TIME
SWD	FWD	1966-595	1966-595
LANEPORT	LANEPORT	1966-595	1966-595

ELEVATION	DEPTH	LOG	DESCRIPTION
450.1	41.5-41.8	CLAY	DEPOSITIONAL SEAM, MICROCLUST.
450.1	45.8-46.1	20' JOINT	
450.1	46.1-47.1	20' JOINT	
450.1	47.1-47.1	70' SLICK LINED w/ PYRITE.	
450.1	49.0-50.0	20' JOINT	
450.1	50.0-51.6	CLAY	
450.1	51.6-54.3	CLAY	
450.1	54.3-56.3	CLAY	
450.1	56.3-58.3	CLAY	
450.1	58.3-60.0	CLAY	
450.1	60.0-62.3	CLAY	
450.1	62.3-63.6	CLAY	
450.1	63.6-65.1	CLAY	
450.1	65.1-66.3	CLAY	
450.1	66.3-69.5	CLAY	
450.1	69.5-70.3	CLAY	



2

NO.		ACTION		DATE	DESCRIPTION OF REVISION	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS						
DESIGNED BY:		LANEPORT LAKE SAN GABRIEL RIVER, TEXAS				
DRAWN BY:		LOGS OF BORINGS				
CHECKED BY:		8A6C-595				
SUBMITTED BY:		VOLUME - II				
ENGINEER		INVITATION NO.		SPECIFICATIONS DATED		SEQUENCE NO.
		DRAWING NUMBER		SHEET NO.		66
				56 OF 68		

DRILLING LOG	WELL NO.	WELL NAME	WELL TYPE
PROPERTY		SOUTHWESTERN	FOUR
LANDSPORT			
LOCATION			
STA 9-10 84 LIT & +			
DECLINE			
USCE-C			
WELL NO. 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 9			

TO ACCOMPANY FINAL FOUND

2

3

4

5

6

DRILLING LOG

Project: Lanesport Dam

Location: Outlet Works

Drilling Agency: Corps of Engineers

Hole No.: 408, 29.0

Name of Driller: Brewer

Direction of Hole: Down

Very Cal. Inclined: Yes

Thickness of Overburden: 17.0'

Depth Drilled into Rock: 14.5'

Total Depth of Hole: 31.5'

Elevation (feet): 460.0

Classification of Materials:

0.0' to 17.0' - Overburden partially removed before drill.

17.0' to 31.5' - Moderately hard, light to medium gray, moderately fractured, very calcareous, scattered fossils. Slightly weathered, tan, to 18.0'.

Unconsolidated sand, 29.5' to 30.1'.

After, becomes softer from top to bottom, lower, very soft, numerous white crystal masses, numerous mica flakes along bed for numerous small poorly developed "slices".

Remarks: 1. Overburden partially removed before drill. 2. No samples taken.

Signature: H. D. Dean

DRILLING LOG

Project: Lanesport Dam

Location: Outlet Works

Drilling Agency: Corps of Engineers

Hole No.: 408, 29.0

Name of Driller: Brewer

Direction of Hole: Down

Very Cal. Inclined: Yes

Thickness of Overburden: 17.0'

Depth Drilled into Rock: 14.5'

Total Depth of Hole: 31.5'

Elevation (feet): 460.0

Classification of Materials:

0.0' to 17.0' - Overburden partially removed before drill.

17.0' to 31.5' - Moderately hard, light to medium gray, moderately fractured, very calcareous, scattered fossils. Slightly weathered, tan, to 18.0'.

Unconsolidated sand, 29.5' to 30.1'.

After, becomes softer from top to bottom, lower, very soft, numerous white crystal masses, numerous mica flakes along bed for numerous small poorly developed "slices".

Remarks: 1. Overburden partially removed before drill. 2. No samples taken.

Signature: H. D. Dean

DRILLING LOG

Project: Lanesport Dam

Location: Outlet Works

Drilling Agency: Corps of Engineers

Hole No.: 408, 29.0

Name of Driller: Brewer

Direction of Hole: Down

Very Cal. Inclined: Yes

Thickness of Overburden: 17.0'

Depth Drilled into Rock: 14.5'

Total Depth of Hole: 31.5'

Elevation (feet): 460.0

Classification of Materials:

0.0' to 17.0' - Overburden partially removed before drill.

17.0' to 31.5' - Moderately hard, light to medium gray, moderately fractured, very calcareous, scattered fossils. Slightly weathered, tan, to 18.0'.

Unconsolidated sand, 29.5' to 30.1'.

After, becomes softer from top to bottom, lower, very soft, numerous white crystal masses, numerous mica flakes along bed for numerous small poorly developed "slices".

Remarks: 1. Overburden partially removed before drill. 2. No samples taken.

Signature: H. D. Dean

DRILLING LOG

Project: Lanesport Dam

Location: Outlet Works

Drilling Agency: Corps of Engineers

Hole No.: 408, 29.0

Name of Driller: Brewer

Direction of Hole: Down

Very Cal. Inclined: Yes

Thickness of Overburden: 17.0'

Depth Drilled into Rock: 14.5'

Total Depth of Hole: 31.5'

Elevation (feet): 460.0

Classification of Materials:

0.0' to 17.0' - Overburden partially removed before drill.

17.0' to 31.5' - Moderately hard, light to medium gray, moderately fractured, very calcareous, scattered fossils. Slightly weathered, tan, to 18.0'.

Unconsolidated sand, 29.5' to 30.1'.

After, becomes softer from top to bottom, lower, very soft, numerous white crystal masses, numerous mica flakes along bed for numerous small poorly developed "slices".

Remarks: 1. Overburden partially removed before drill. 2. No samples taken.

Signature: H. D. Dean

DRILLING LOG

Project: Lanesport Dam

Location: Outlet Works

Drilling Agency: Corps of Engineers

Hole No.: 408, 29.0

Name of Driller: Brewer

Direction of Hole: Down

Very Cal. Inclined: Yes

Thickness of Overburden: 17.0'

Depth Drilled into Rock: 14.5'

Total Depth of Hole: 31.5'

Elevation (feet): 460.0

Classification of Materials:

0.0' to 17.0' - Overburden partially removed before drill.

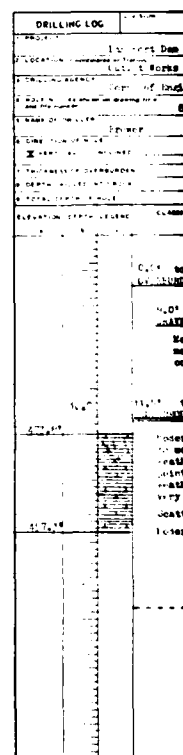
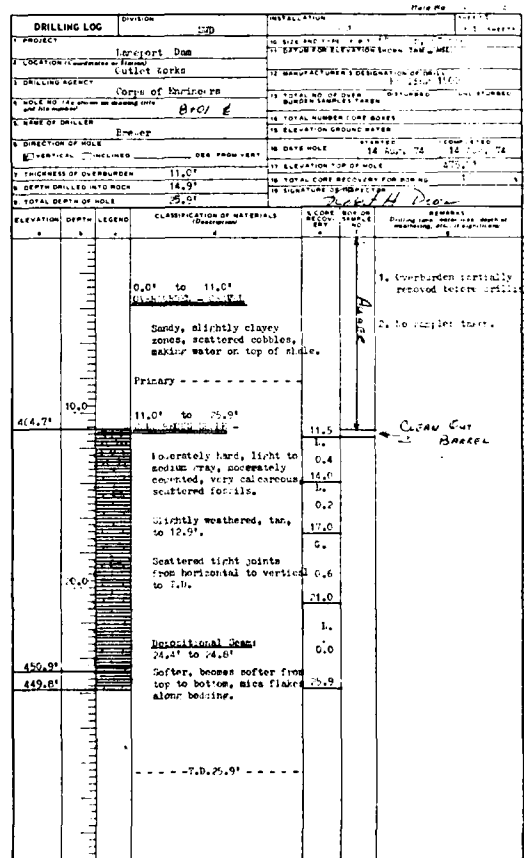
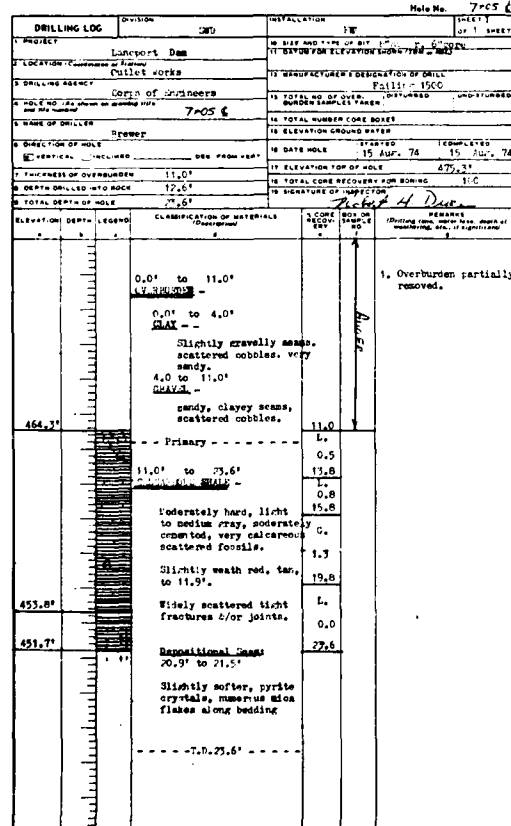
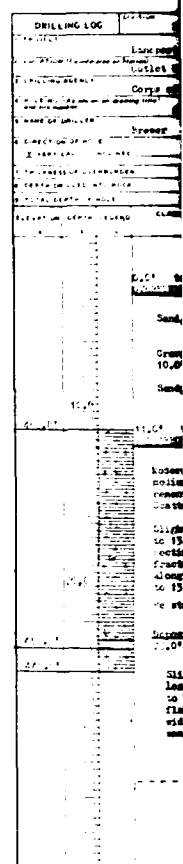
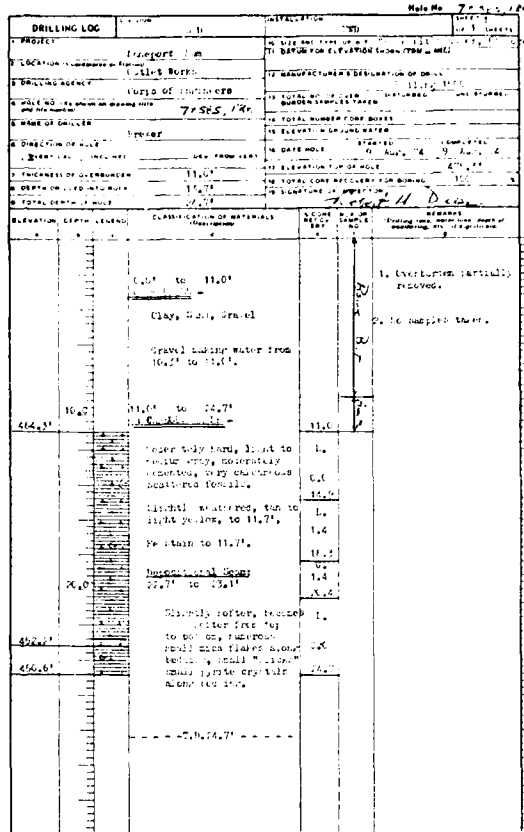
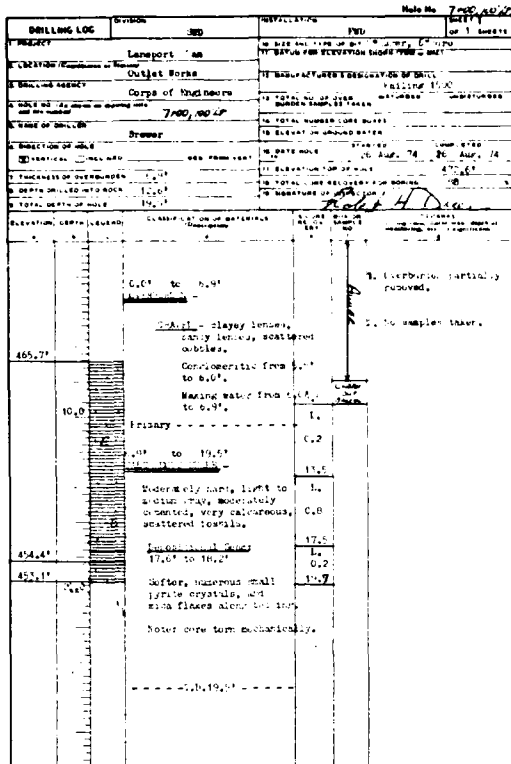
17.0' to 31.5' - Moderately hard, light to medium gray, moderately fractured, very calcareous, scattered fossils. Slightly weathered, tan, to 18.0'.

Unconsolidated sand, 29.5' to 30.1'.

After, becomes softer from top to bottom, lower, very soft, numerous white crystal masses, numerous mica flakes along bed for numerous small poorly developed "slices".

Remarks: 1. Overburden partially removed before drill. 2. No samples taken.

Signature: H. D. Dean



[illegible][illegible][illegible]

GRANGER LAKE
SAN GABRIEL RIVER, TEXAS

FINAL FOUNDATION REPORT

LOGS OF BORINGS FOR
OUTLET WORKS MODIFICATION
STATION 7+00, 100' LT THRU STATION 8+60, E

U.S. ARMY ENGINEER DISTRICT, FORT WORTH

1 2 3 4 5 6

DRILLING LOG

PROJECT: Lanesport Dam

LOCATION: Outlet works

DRILLING AGENCY: Corps of Engineers

NAME OF DRILLER: Brewer

DIRECTION OF HOLE: Vertical

DATE HOLE: 12 Aug. 74

THICKNESS OF OVERBURDEN: 6.5'

DEPTH DRILLED INTO ROCK: 22.7'

TOTAL DEPTH OF HOLE: 29.2'

ELEVATION: 463.5'

CLASSIFICATION OF MATERIALS: 0.0' to 6.5' Overburden partially removed. 6.5' to 29.2' Moderately hard, light to medium gray, moderately cemented, very calcareous, scattered fossils. Weathered tan to light yellow to 10.0', weathered fractures &/or joints to 15.0'. Scattered probable joints from 0.0' to 13.0' (tight). Large well developed "slices" @ 14.0', 16.7', 17.5'. Possible depositional seams in possible fault plane from 19.5' to 19.7', scattered mica flakes, approx 50' to 60' dip. Numerous small "slices".

REMARKS: 1. Overburden partially removed. 2. No samples taken.

DRILLING LOG

PROJECT: Lanesport Dam

LOCATION: Outlet works

DRILLING AGENCY: Corps of Engineers

NAME OF DRILLER: Brewer

DIRECTION OF HOLE: Vertical

DATE HOLE: 12 Aug. 74

THICKNESS OF OVERBURDEN: 6.5'

DEPTH DRILLED INTO ROCK: 17.1'

TOTAL DEPTH OF HOLE: 23.6'

ELEVATION: 457.9'

CLASSIFICATION OF MATERIALS: 0.0' to 17.1' Moderately hard, light to medium gray, moderately cemented, very calcareous, scattered fossils. Moderately weathered, tan to light yellow to 1.1', weathered fractures &/or joints. Unconsolidated seams 4.0' to 5.5'. Very little or ferrous in hardness, numerous mica flakes along bedding.

REMARKS: 1. No samples removed before drilling. 2. No samples taken.

DRILLING LOG

PROJECT: Lanesport Dam

LOCATION: Outlet works

DRILLING AGENCY: Corps of Engineers

NAME OF DRILLER: Brewer

DIRECTION OF HOLE: Vertical

DATE HOLE: 16 Aug. 74

THICKNESS OF OVERBURDEN: 6.5'

DEPTH DRILLED INTO ROCK: 12.3'

TOTAL DEPTH OF HOLE: 18.8'

ELEVATION: 463.0'

CLASSIFICATION OF MATERIALS: 0.0' to 6.5' Overburden partially removed. 6.5' to 18.8' Moderately hard, light to medium gray, moderately cemented, very calcareous, scattered fossils. Moderately weathered, tan to light yellow to 1.1', weathered fractures &/or joints to 15.0'. Scattered probable joints from 0.0' to 13.0' (tight). Large well developed "slices" @ 14.0', 16.7', 17.5'. Possible depositional seams in possible fault plane from 19.5' to 19.7', scattered mica flakes, approx 50' to 60' dip. Numerous small "slices".

REMARKS: 1. Overburden partially removed. 2. No samples taken.

DRILLING LOG

PROJECT: Lanesport Dam

LOCATION: Outlet works

DRILLING AGENCY: Corps of Engineers

NAME OF DRILLER: Brewer

DIRECTION OF HOLE: Vertical

DATE HOLE: 16 Aug. 74

THICKNESS OF OVERBURDEN: 6.5'

DEPTH DRILLED INTO ROCK: 12.3'

TOTAL DEPTH OF HOLE: 18.8'

ELEVATION: 457.3'

CLASSIFICATION OF MATERIALS: 0.0' to 10.5' Moderately hard, medium gray, very calcareous, laminated to conchoidal fracture, cemented. Scattered fossils. Scattered hi angle joints. Depositional seams 1.4' to 7.0'. Slightly softer, numerous mica flakes along bedding planes, very small poorly developed "slices". Many small pyrite crystals.

REMARKS: 1. Sample located on rock after overburden removed. 2. No samples taken.

DRILLING LOG

PROJECT: Lanesport Dam

LOCATION: Outlet works

DRILLING AGENCY: Corps of Engineers

NAME OF DRILLER: Brewer

DIRECTION OF HOLE: Vertical

DATE HOLE: 12 Aug. 74

THICKNESS OF OVERBURDEN: 6.5'

DEPTH DRILLED INTO ROCK: 17.1'

TOTAL DEPTH OF HOLE: 23.6'

ELEVATION: 457.9'

CLASSIFICATION OF MATERIALS: 0.0' to 17.1' Moderately hard, light to medium gray, moderately cemented, very calcareous, scattered fossils. Moderately weathered, tan to light yellow to 1.1', weathered fractures &/or joints. Unconsolidated seams 4.0' to 5.5'. Very little or ferrous in hardness, numerous mica flakes along bedding.

REMARKS: 1. No samples removed before drilling. 2. No samples taken.

DRILLING LOG

PROJECT: Lanesport Dam

LOCATION: Outlet works

DRILLING AGENCY: Corps of Engineers

NAME OF DRILLER: Brewer

DIRECTION OF HOLE: Vertical

DATE HOLE: 16 Aug. 74

THICKNESS OF OVERBURDEN: 6.5'

DEPTH DRILLED INTO ROCK: 12.3'

TOTAL DEPTH OF HOLE: 18.8'

ELEVATION: 457.3'

CLASSIFICATION OF MATERIALS: 0.0' to 10.5' Moderately hard, medium gray, very calcareous, laminated to conchoidal fracture, cemented. Scattered fossils. Scattered hi angle joints. Depositional seams 1.4' to 7.0'. Slightly softer, numerous mica flakes along bedding planes, very small poorly developed "slices". Many small pyrite crystals.

REMARKS: 1. Sample located on rock after overburden removed. 2. No samples taken.

Drilling Log Form (Note No. 10-45-50-44)

PROJECT: Lanesport Dam
LOCATION: Outlet Works
DRILLING AGENCY: Corps of Engineers
NAME OF DRILLER: Frazier
DIRECTION OF HOLE: Vertical
THICKNESS OF OVERBURDEN: 0.0'
DEPTH DRILLED INTO ROCK: 11.2'
TOTAL DEPTH OF HOLE: 11.2'

CLASSIFICATION OF MATERIALS (Description):
0.0' to 13.9'
1. Overburden removed.
2. No samples taken
3. Moderately hard, light to medium gray, moderately cemented very calcareous, scattered fossils.
4. Large "lick", hi angle, 10.6'.
5. Discontinuous zone 1.0' to 1.1'.
6. Softer, becoming softer from top to bottom, numerous small pyrite crystals, small crystal pyrite.

REMARKS: 1. Overburden removed. 2. No samples taken.

Drilling Log Form (Note No. 10-45-50-44)

PROJECT: Lanesport Dam
LOCATION: Outlet Works
DRILLING AGENCY: Corps of Engineers
NAME OF DRILLER: Frazier
DIRECTION OF HOLE: Vertical
THICKNESS OF OVERBURDEN: 0.0'
DEPTH DRILLED INTO ROCK: 11.2'
TOTAL DEPTH OF HOLE: 11.2'

CLASSIFICATION OF MATERIALS (Description):
0.0' to 11.2'
1. Overburden removed.
2. No samples taken
3. Moderately hard, light to medium gray, moderately cemented very calcareous, scattered fossils.
4. Large "lick", hi angle, 10.6'.
5. Discontinuous zone 1.0' to 1.1'.
6. Softer, becoming softer from top to bottom, numerous small pyrite crystals, small crystal pyrite.

REMARKS: 1. Overburden removed. 2. No samples taken.

Drilling Log Form (Note No. 10-45-50-44)

PROJECT: Lanesport Dam
LOCATION: Outlet Works
DRILLING AGENCY: Corps of Engineers
NAME OF DRILLER: Frazier
DIRECTION OF HOLE: Vertical
THICKNESS OF OVERBURDEN: 0.0'
DEPTH DRILLED INTO ROCK: 11.2'
TOTAL DEPTH OF HOLE: 11.2'

CLASSIFICATION OF MATERIALS (Description):
0.0' to 14.7'
1. Overburden removed before drilling.
2. No samples taken.
3. Moderately hard, light to medium gray, moderately cemented, very calcareous, scattered fossils, weathered.
4. Discontinuous zone 4.9' to 5.5'.
5. Very little difference in hardness, numerous small pyrite crystals, and mica flakes along bedding.
6. Note: Boring taken deeper to double check seam depth.

REMARKS: 1. Overburden removed before drilling. 2. No samples taken.

GRANGER LAKE
SAN GABRIEL RIVER, TEXAS

FINAL FOUNDATION REPORT
LOGS OF BORINGS FOR
OUTLET WORKS MODIFICATION
STATION 8+73, & THRU STATION 10+90, 15' LT

U.S. ARMY ENGINEER DISTRICT, FORT WORTH

FILE NO. PLATE 116

DRILLING LOG

PROJECT: Lanepost Dam

LOCATION: Outlet Works

DRILLING AGENCY: Corps of Engineers

HOLE NO. (See sketch on drawing sheet): 11-40, 1st

NAME OF DRILLER: T. J. Jones

DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED

THICKNESS OF OVERBURDEN: 0.0'

DEPTH DRILLED INTO ROCK: 12.5'

TOTAL DEPTH OF HOLE: 12.5'

DATE HOLE STARTED: 1 Aug. 74

DATE HOLE COMPLETED: 1 Aug. 74

ELEVATION TOP OF HOLE: 451.74

ELEVATION GROUND WATER: 365.5'

TOTAL CORE RECOVERY FOR BORING: 100.0%

REMARKS: 1. Boring located on rock after overburden removed. 2. No samples obtained.

CLASSIFICATION OF MATERIALS (Description):

0.0' to 12.5' CALCAREOUS SLATE - Moderately hard, medium gray, very calcareous, conchoidal fracture. Scattered fossils. Slightly weathered from 0.5' to 1.2', light yellow.

12.5' to 10.4' Dispositional Sample: Softer, numerous mica flakes along bedding, scattered small pyrite crystals, scattered small poorly developed "slices".

10.4' to 10.0' T.D. 12.5'

DRILLING LOG

PROJECT: Lanepost Dam

LOCATION: Outlet Works

DRILLING AGENCY: Corps of Engineers

HOLE NO. (See sketch on drawing sheet): 12-50

NAME OF DRILLER: F. Jones

DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED

THICKNESS OF OVERBURDEN: 0.0'

DEPTH DRILLED INTO ROCK: 14.5'

TOTAL DEPTH OF HOLE: 14.5'

DATE HOLE STARTED: 1 Aug. 74

DATE HOLE COMPLETED: 1 Aug. 74

ELEVATION TOP OF HOLE: 451.74

ELEVATION GROUND WATER: 365.5'

TOTAL CORE RECOVERY FOR BORING: 100.0%

REMARKS: 1. Boring located on top of rock after overburden removed. 2. No samples taken.

CLASSIFICATION OF MATERIALS (Description):

0.0' to 14.5' CALCAREOUS SLATE - Moderately hard, light to medium gray, very calcareous, conchoidal to well rounded in places, finely bedded to slightly conchoidal fracture. Scattered fossils.

14.5' to 11.2' Dispositional Sample: Softer, becomes lean towards top to bottom of rock, scattered small mica flakes along bedding. Scattered small poorly developed "slices".

11.2' to 10.0' T.D. 14.5'

DRILLING LOG

PROJECT: Lanepost Dam

LOCATION: Outlet Works

DRILLING AGENCY: Corps of Engineers

HOLE NO. (See sketch on drawing sheet): 12-29

NAME OF DRILLER: Brewer

DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED

THICKNESS OF OVERBURDEN: 0.0'

DEPTH DRILLED INTO ROCK: 15.6'

TOTAL DEPTH OF HOLE: 15.6'

DATE HOLE STARTED: 31 July 74

DATE HOLE COMPLETED: 31 July 74

ELEVATION TOP OF HOLE: 452.8'

ELEVATION GROUND WATER: 360.0'

TOTAL CORE RECOVERY FOR BORING: 90.0%

REMARKS: 1. No samples obtained. 2. Boring located on rock after overburden removed.

CLASSIFICATION OF MATERIALS (Description):

0.0' to 15.6' CALCAREOUS SLATE - Moderately hard, medium gray, very calcareous, slightly laminated to conchoidal fracture. Scattered fossils, scattered mica joints.

15.6' to 11.8' Slightly softer from 0.5' to 0.9'. Moderately cemented to 7.4'.

11.8' to 12.3' Dispositional Sample: Soft to moderately hard, micaceous, scattered along bedding planes, scattered small pyrite crystals, scattered small poorly developed "slices".

12.3' to 10.0' T.D. 15.6'

DRILLING LOG

PROJECT: Lanepost Dam

LOCATION: Outlet Works

DRILLING AGENCY: Corps of Engineers

HOLE NO. (See sketch on drawing sheet): 12-69, 2nd

NAME OF DRILLER: Brewer

DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED

THICKNESS OF OVERBURDEN: 0.0'

DEPTH DRILLED INTO ROCK: 11.5'

TOTAL DEPTH OF HOLE: 11.5'

DATE HOLE STARTED: 31 July 74

DATE HOLE COMPLETED: 31 July 74

ELEVATION TOP OF HOLE: 452.8'

ELEVATION GROUND WATER: 360.0'

TOTAL CORE RECOVERY FOR BORING: 100.0%

REMARKS: 1. Boring located on rock after overburden removed. 2. No samples obtained.

CLASSIFICATION OF MATERIALS (Description):

0.0' to 11.5' CALCAREOUS SLATE - Moderately hard, medium gray, very calcareous, conchoidal fracture. Scattered fossils. Moderately to well cemented in thin zones.

11.5' to 10.0' Dispositional Sample: Soft to moderately hard, micaceous, scattered along bedding planes, scattered small pyrite crystals, scattered small poorly developed "slices".

10.0' to 10.0' T.D. 11.5'

Drilling Log Form (Sheet 1 of 1)

PROJECT: **Lampport Dam**

LOCATION: **Outlet Works**

DATE: **12-90**

DRILLING AGENCY: **US Army Corps of Engineers**

NAME OF DRILLER: **Frank**

DIRECTION OF HOLE: **Vertical**

THICKNESS OF OVERBURDEN: **0.0'**

DEPTH DRILLED INTO ROCK: **14.0'**

TOTAL DEPTH OF HOLE: **14.0'**

CLASSIFICATION OF MATERIALS (Description):

1. **0.0' to 14.0'**
Moderately hard, light to medium gray, moderately well cemented in one, very calcareous, fairly bedded, scattered fossils.

2. **14.0' to 14.6'**
Interstratified zone: 11.1' to 11.9'

3. **14.6' to 14.8'**
Softer, slightly oriented mica flakes along bedding planes, scattered small poorly developed fossils.

4. **14.8' to 15.0'**
Softer, becomes softer from top to bottom, numerous pyrite crystals & mica flakes along bedding.

REMARKS: **1. Samples located on top of rock after overburden removed.**
2. No samples taken.

Drilling Log Form (Sheet 2 of 1)

PROJECT: **Lampport Dam**

LOCATION: **Outlet Works**

DATE: **12-90**

DRILLING AGENCY: **US Army Corps of Engineers**

NAME OF DRILLER: **Frank**

DIRECTION OF HOLE: **Vertical**

THICKNESS OF OVERBURDEN: **0.0'**

DEPTH DRILLED INTO ROCK: **5.0'**

TOTAL DEPTH OF HOLE: **5.0'**

CLASSIFICATION OF MATERIALS (Description):

1. **0.0' to 5.0'**
Unweathered, moderately hard, light to medium gray, moderately cemented, very calcareous, scattered fossils.

2. **5.0' to 5.1'**
Softer, becomes softer from top to bottom, numerous pyrite crystals & mica flakes along bedding.

REMARKS: **1. Overburden removed.**
2. No samples taken.

GRANGER LAKE
SAN GABRIEL RIVER, TEXAS

FINAL FOUNDATION REPORT

LOGS OF BORINGS FOR
OUTLET WORKS MODIFICATION
STATION 11+40, 1 RT THRU STATION 12+96, 94' LT

U.S. ARMY ENGINEER DISTRICT, FORT WORTH

FILE

NO

PLATE 117

TO ACCOMPANY FINAL FOUNDATION REPORT

